STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

For forty-eight years—IRON TRADE REVIEW

Contents . . . August 9, 1937

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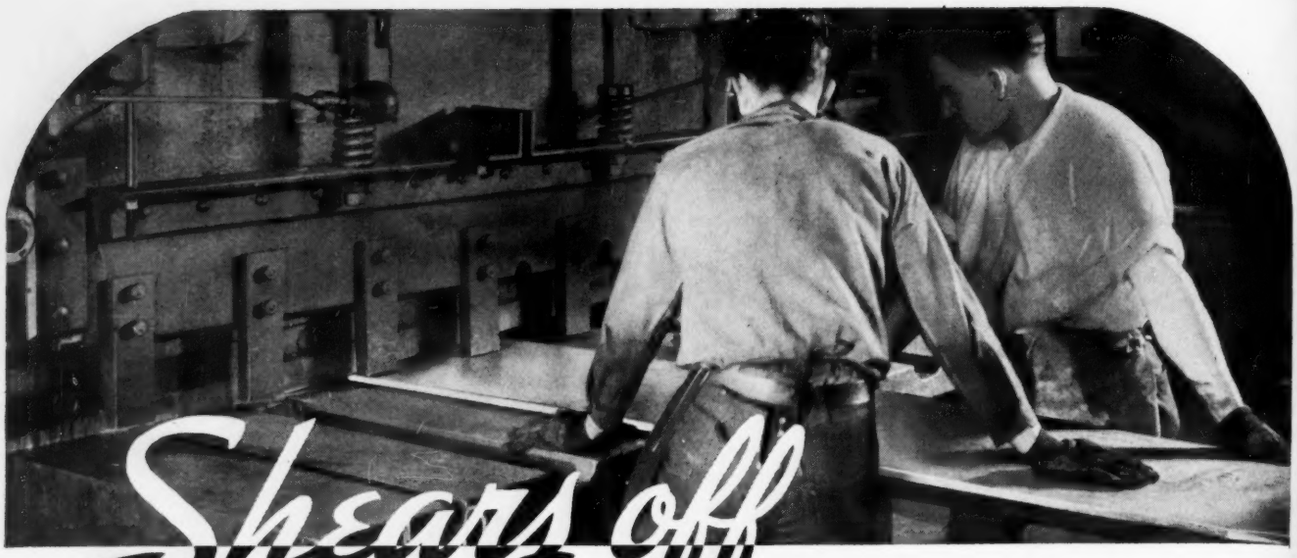
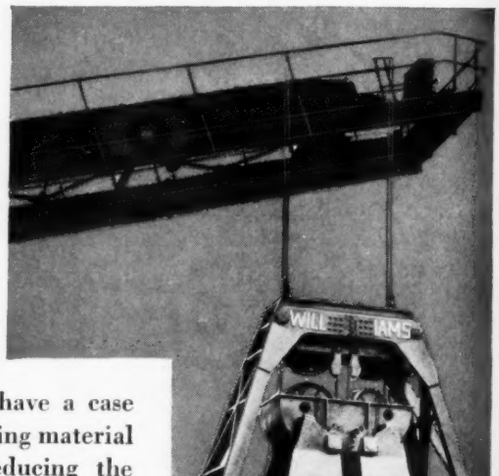
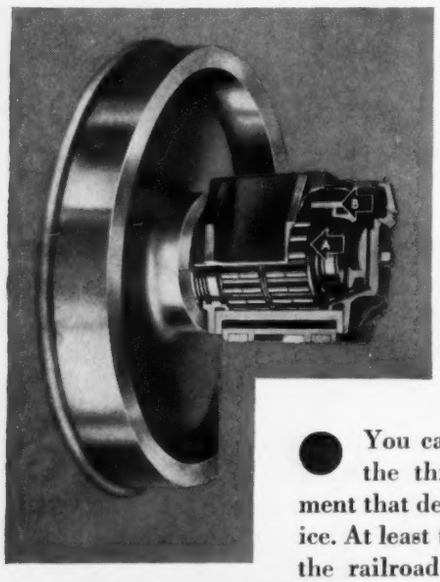


Shears off

NEEDLESS COSTS *and* NEEDLESS WEIGHT

● The trouble with costs is you can't tell how much is *needless* until there's a basis for comparison. But here's one that ought to be interesting to every user of tool steels. The shear blade pictured above operating on hard alloy steel stock was formerly made of carbon tool steel. After cutting 200 to 500 pieces, however, the blades regularly became spalled or broke out at the edges. But after the Henry Disston Steel Works furnished blades made of their "827" medium carbon Nickel-chromium steel, the average service life jumped to 3,000 to 6,000 cuts between grinds with no spalling or breakage. Nickel steel not only sheared more parts but sheared off needless cost.





● Here at the right we have a case where the cost of handling material was appreciably cut by reducing the weight of equipment, thereby increasing the pay load. By using "Yoloy", a high tensile Nickel-copper alloy steel produced by the Youngstown Sheet and Tube Co., Youngstown, Ohio, in the construction of this large breakdown coal bucket, its pay load capacity was increased from 6 to 7 tons without increasing its gross weight.

NICKEL
ALLOY STEELS

● You can't help but have respect for the thrift of transportation equipment that delivers a *million miles* of service. At least that much mileage is given by the railroad coach journal bearing pictured at the left, a type that is used by 24 leading railway lines and manufactured by The Fafnir Bearing Co., New Britain, Conn. Among the reasons are the inner race (A) made of shock-resisting Nickel-molybdenum carburizing steel and the housing bore (B) made of wear-resisting Nickel Cast Iron.

We invite consultation on the many ways in which the Nickel Alloy Steels will help to reduce operating and maintenance costs.

THE INTERNATIONAL NICKEL COMPANY, INC., NEW YORK, N.Y.

As the Editor Views the News

EVIDENCE of flagrant contract violations and bad faith by CIO continues to remind the public that the Wagner act is not all that was claimed for it by its sponsors. The Heppenstall case is particularly illuminating. Representatives of the company and CIO were in session (p. 21) amicably arranging for an election. During the conference, pickets appeared at the plant gates. CIO representatives admitted that they had authorized the strike before the request for a conference was issued. Heppenstall said negotiations would stop unless pickets were withdrawn. Picketing continued. Heppenstall canceled negotiations. Operations ceased. This sort of thing is weakening CIO all along the line.

• • •

More Stacks Are in Blast

Blast furnace activity has more than regained the ground lost during recent strikes. On July 31 stacks in blast numbered 192 (p. 20), compared with 182 on June 30, 170 on May 31 and 186 on April 30. Production of pig iron in July totaled 3,501,359 tons, which is the highest output for any month in the recovery period except for the 3,545,180 tons produced in May. . . . Industry generally is resisting seasonal pressure. In spite of vacations in motordom, STEEL'S index of industrial activity for the week ending July 31 (p. 34) was up slightly. . . . Steelworks last week (p. 23) operated at 84.5 per cent of capacity.

• • •

Playing With Dynamite

In his quarterly review of business conditions in Europe (p. 17), STEEL'S European manager, Vincent Delport, stresses the significance of the collapse of the Blum cabinet in France. Blum, in office less than a year, headed a popular front government supported by socialists and communists. Says Mr. Delport, "History repeats itself, and, as in Great Britain in 1931, a labor type of government applied without transition, almost brutally, a program of legislation based on socialistic theories. As in Great Britain, the experiment failed. . . . As in 1931, a new government comes in with a program of retrenchment and higher taxation. . . ." No one familiar with current events in the United States can view the history of socialistic experiment in Great Britain in 1931 and France in 1936-37 without realizing the extent to which some public officials in Washington are playing with dynamite.

• • •

Buying Habits Shift Work

The practice of purchasing strip steel in coils for purposes where previously it was considered necessary to purchase flat strip or sheets has interesting implications. A fabricator of steel floor sections, who once bought sheets free from camber (paying an extra for this quality), now buys plain hot-rolled strip steel in coils (p. 60) and by means of new equipment synchronized into a continuous production line produces automatically flat and square sheets free from cross-break and camber and cut to any desired width and length. This is typical of the widespread changes in the metalworking industries, some of which have the effect of transferring work from one branch of industry to another.

• • •

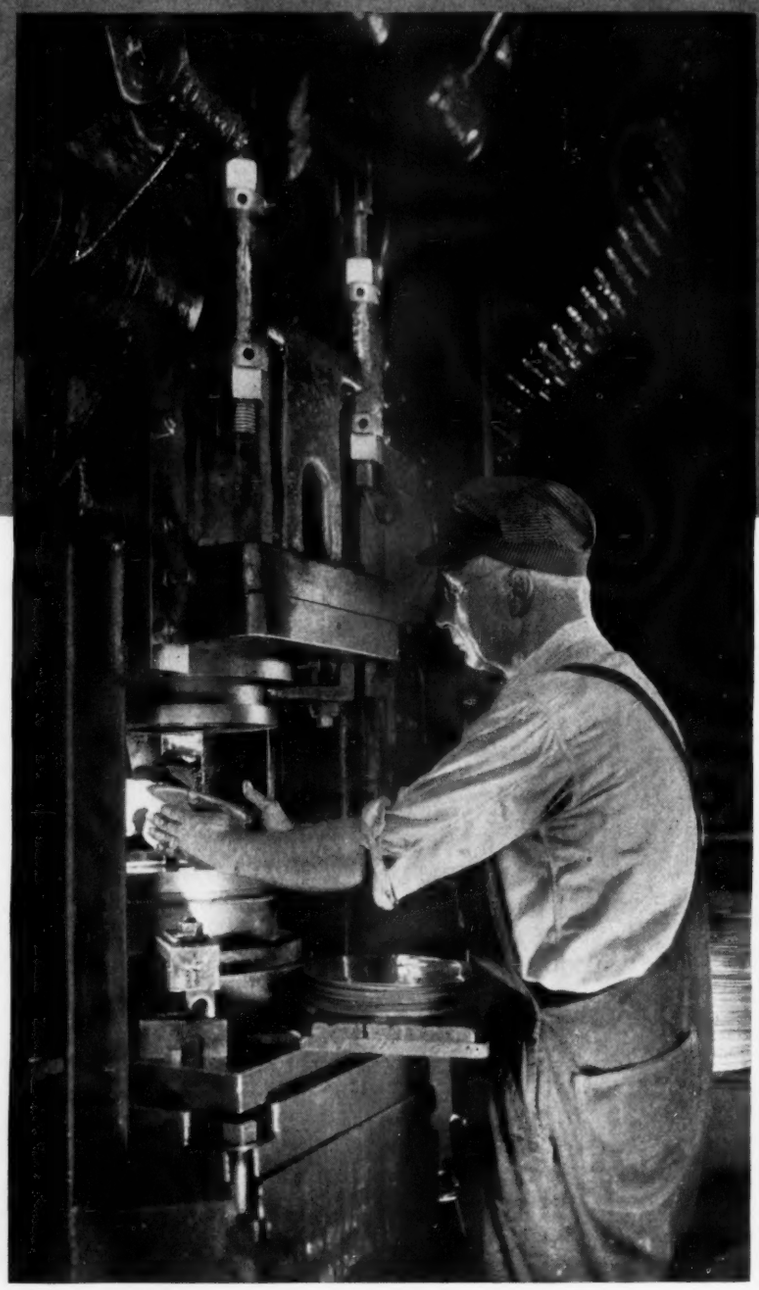
More Facts on Jobs Needed

This factor sometimes is overlooked by authorities who try to make a strong case for the threat of technological unemployment (p. 33) by referring to statistics which show that the number of man-hours of labor to produce a ton of steel has been declining. On the average, a ton of steel today goes into use in a more finished state than was the case a decade ago. Less labor is involved in producing the steel, but more labor is expended in processing, finishing and fabricating it for use. Part of the added labor in the secondary operations is performed in the plants of integrated steel companies and part of it in plants outside of the steel industry. That is one explanation of why employment in steel is greater today than in 1929.

E. L. Shaner

WORKABILITY

As INLAND Metallurgists Use the Term



The term "workability" as applied by Inland metallurgists has a broad meaning. It includes all of those physical and metallurgical qualities of a steel sheet that can affect the customer's manufacturing cost. Speed of forming operation, amount of spoilage, wear of dies, suitable finish . . . and other such cost factors are included.

Their long experience with the *hidden costs* of working with steel often results in important savings for Inland customers. Their job is to improve the "workability" of the steel you get from Inland . . . to link every step in the making of your steel more closely to your individual requirements. And their personal attention to your operations and finished products involves no obligation.

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Europe Responds to Strong Steel Demand; Labor Radicals Retarding France

BY VINCENT DELPORT

European Manager, STEEL

BARRING the possibility of war among European nations, and despite an unfavorable financial and industrial situation in France, Mr. Delport in his quarterly review believes 1937 will set new records for steel production and prices. World needs for steel are pressing and all steelmaking countries are pushed to provide tonnage. Some difficulties which previously hampered trade have been solved, and the general outlook is better than a few months ago.

LONDON

THE outstanding event of the past three months in Europe occurred in the last days of June when, following the overthrow of the Blum cabinet in France, the French franc was "unpegged" from the gold point at which it had been fixed in September, 1936.

The action taken by the new finance minister naturally caused some disturbance in international exchanges, not only as regards money, but also pertaining to goods and services.

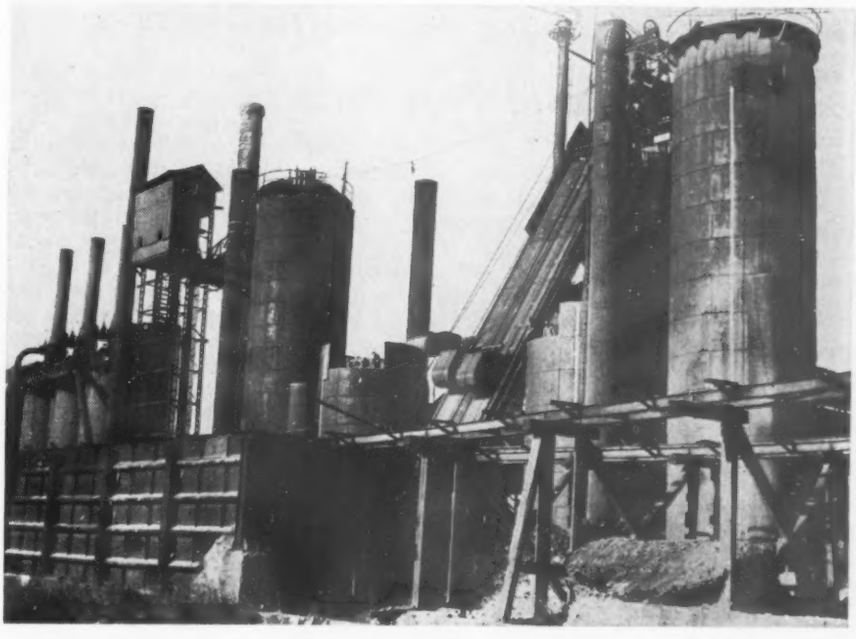
It was almost a year since Leon Blum, France's first socialist prime minister, took office and formed his popular front government, composed mainly of socialist members, with a few radicals, and officially supported by the communist party. The event was reported at the time in these columns. (STEEL, July 13, 1936, pp. 18 and 19).

Labor Government Fails

During that year, financial, industrial and trade conditions in France deteriorated, until the government had to contemplate an almost empty treasury, and found itself unable to stem the recurring waves of strikes launched by the more extreme elements of the working classes which were continually claiming more and more concessions from employers.

History repeats itself, and, as in Great Britain in 1931, a labor type of government applied without transition, almost brutally, a program of legislation based on socialistic theories. As in Great Britain, the experiment failed and resulted in reduced production, increasing cost of living and flight of capital from the country. Again as in 1931,

Two Old Southern Furnaces Going to Japan



DISMANTLING of the Vanderbilt (road) blast furnace plant, long a landmark at East Birmingham, Ala., is in process, the two stacks having been sold recently by the Woodward Iron Co., for scrap. Stack No. 1 was erected in 1890; No. 2 in 1908. In subsequent resales by brokers, the Japanese government purchased No. 2, to be dismantled, shipped through the port of Mobile, and re-erected in Japan. The other will be shipped to Japan as scrap

a new government comes in with a program of retrenchment and higher taxation, and devalues the national currency.

It is true that when Blum came into power the finances of France were already in an unsatisfactory condition, but the measures taken under the menace of communist and socialist disfavor tended to make matters worse by destroying what little confidence and spirit of enterprise remained among the leaders of trade and industry.

Furthermore, the immediate application of the 40-hour week, paid holidays and increases in wages, without giving industry time to adapt itself, destroyed the economic equilibrium of the country, which was already reduced to a fairly fine point.

Represents Popular Front

Unlike Great Britain, however, France has not even now the advantage of a truly national government comprising representatives of all but the extreme sections, and working in the interests of all classes. The new government, under Camille Chautemps, still pays homage to the popular front, which amalgamates the communist party with the socialists and with disgruntled members of other parties of the left.

It is true that Georges Bonnet, the new finance minister, has been given leave to take the necessary measures to prevent a complete breakdown of the nation's finances but it has been made plain that the program of the popular front is being interrupted only in its application, and that it remains as the goal to be pursued as soon as present conditions have been patched up.

The new government has obtained from the chamber and the senate those discretionary powers to deal with the situation that were refused by the senate to Blum.

The first step taken was to release the franc, which immediately dropped by about 18 per cent, and to take advantage of this to revalue the gold holding of the Bank of France and borrow anew from that institution. Power was obtained to modify tariff duties if it were deemed necessary to do so.

Finally, the ordinary budget is to be balanced by means of drastic cuts in national expenditure, including a substantial saving on unemployment relief work not yet commenced, and substantial increases in both direct and indirect taxation. It is significant that the governor of the Bank of France, appointed by Blum shortly after the latter took office, was displaced, and that the new governor supports a policy more to the liking of business interests.

Had these measures, and others to follow, been taken by a representative government of truly national character, strong hopes could be entertained that a favorable situation would be re-established as speedily and as well as was the case with Great Britain in 1931-32.

As it is, business interests and the more conservative elements remain suspicious of most of the present men in power. They fear that the extremist parties will continue to control, or at least strongly influence, governmental action, and the revival of confidence which is necessary for the repatriation of capital so vital for the return of prosperity is absent.

Often in these articles we have pointed to the trend of the political situation in France, and emphasized that politics exerts a strong influence on the economic life of the country. Unfortunately, our forebodings, so far, have been only too well confirmed.

Restricts Steel Production

All the events that we have related have naturally had a detrimental effect on French steel trade. Although the production of steel during the first five months this year reached 3,249,000 metric tons, compared with 2,854,000 tons in the corresponding period of 1936—an increase of 13.8 per cent—it is claimed on behalf of the leaders of industry that with the present abnormal world demand much more steel could be produced, and sold at a more economic price, if it were not for the new measures suddenly imposed by the new laws, which have caused production costs to soar rapidly.

Furthermore, French producers are placed at a disadvantage as regards export trade because France, at present, is practically the only country where such restrictions as the 40-hour week are applied. As a result, French exports of iron and steel, exclusive of scrap have increased by less than 12 per cent during the first five months of the year.

As regards domestic trade, private business preserves its timid attitude, and apart from armaments and public works there is little incentive to start ambitious schemes requiring large tonnages of steel. There is no doubt that for the time being France lags behind other European countries in production and trade, and the outlook remains uncertain.

As a contrast, conditions in Great Britain have continued favorable. Steel production is attaining record figures, the highest monthly output having been reached in March with 1,109,500 tons. For the first six months, output was 6,338,400 tons, against 5,743,000 tons in the first half of last year, an increase of 10.4 per cent. This percentage is lower than the French, but it must be remembered that British production more than doubled from 1932 to 1936, whereas the French output has remained almost at a standstill since 1933.

British exports of iron and steel

Germany Moves for Self-Sufficiency;

Brassert To Build Three Steelworks

THE Berlin branch of H. A. Brassert & Co. has been awarded contract of the German government to build three complete new iron and steel works. These works will be located on native ore deposits, one in North Germany near Brunswick, one in Bavaria and one in Baden. The government's program is to increase the use of native resources.

The first plant will be of very large capacity (specific figures are not disclosed). All three will use the new basic bessemer process as developed in recent years at the Corby iron and steel plant, in England, which was built by Mr. Brassert for Stewarts & Lloyds Ltd.

The contract includes ore mining plants and development, ore preparation, coke ovens, blast furnaces, steelworks and rolling mills.

Germany's supply of high grade ore is limited and the installation of additional facilities for producing steel from the better quality ore would depend on the country's ability to obtain sufficient supplies of such ore by importation. In the past much of it has come from Spain and Sweden.

In the interest of being less dependent on outside sources of raw material, Germany is anxious to make greater use of its own natural resources. The obvious implication is that in time of war such plants would be more valuable than those whose operations are regulated by importations which would be curtailed, if not suspended. During the World war Germany was not pinched so badly because for years previous she had been laying up supplies of raw material as well as completed armaments, and she had not yet lost some of her ore mines.

Possibly it would be unfair to label this steel plant development as an item of war preparation, but there is that angle to it, despite its importance as a supplier of material for peace-time use.

during the first half of the year have risen about 28 per cent, notwithstanding the difficulty experienced in satisfying the requirements of the home market, the increase, however, applying entirely to finished products.

There are strong reasons to believe that the prosperity of the British steel industry is assured for a reasonably long period. The railroads, automobile industry, engineering and construction, shipbuilding, practically all the steel-using industries are fully occupied, not only for the armament program, but also owing to the general business and industrial impetus which the country is enjoying. Wages are rising, and the number of insured people at work June 21 was 11,517,000, or 584,000 more than 12 months prior. Unemployment had dropped to 1,356,598, or 346,078 less than in June, 1936. Prices are rising, but gradually, so that no sudden change is brought into private and industrial budgets.

In a recent report of the import duties advisory committee, which covers the present organization and the future of the iron and steel industry of Great Britain, and which was presented at parliament, it was stated that the present method of organization by means of the British Iron and Steel federation and its associated bodies had proved satisfactory. It is also stated that the present system of state supervision, which controls the amount of protection afforded by the tariff, must continue for some time. The report in general is entirely favorable to the present system, and optimistic in its outlook.

German Output Expands

The steel industry of Germany continues active at home and in export markets. During the first six months of the year, German steel output was 9,546,811 metric tons, against 9,311,706 tons in the corresponding period of 1936, an increase of 2.5 per cent. This increase does not appear to be large, but output in Germany had gone up by leaps and bounds in 1935 and 1936. Exports of iron and steel from Germany in the period January to May this year totaled 1,525,305 metric tons, slightly more than in the corresponding period of 1936. Substantial increases in exports of merchant steel, tubes, wire rods, tin plate and railroad track material were compensated by a substantial reduction in exports of plates and sheets.

Recently Germany signed a commercial agreement with France, which provides among other things for exchange of German coke for French iron ore. It has also been reported that Germany has signed a trade agreement with General Franco, leader of the Spanish nationalists, which would guarantee to Germany a proportion of iron ore from the Bilboa area, which is partly of British and partly of Spanish ownership, and which is now controlled by Franco.

The German nation in general is working hard and producing on a large scale. The principal economic difficulties of Germany are finance and raw materials. The financial problem still casts its shadow on the future.

As regards raw materials, Germany has made great advance in developing synthetic materials of replacement, such as rubber, wool, petrol, and a spectacular display of recent progress in that direction is made in a large-scale exhibition now being held in Dusseldorf.

Better Activity General

Most of the other industrial countries of Europe are experiencing a period of real activity. Belgium and Luxemburg, both disposing of the greater proportion of their iron and steel output in export markets, are reaping the benefit of the present world demand. In Italy, Czechoslovakia, Poland, Scandinavia the iron and steel and engineering industries are improving and the general outlook is toward a continuation of this trend, always providing that war does not break out in Europe.

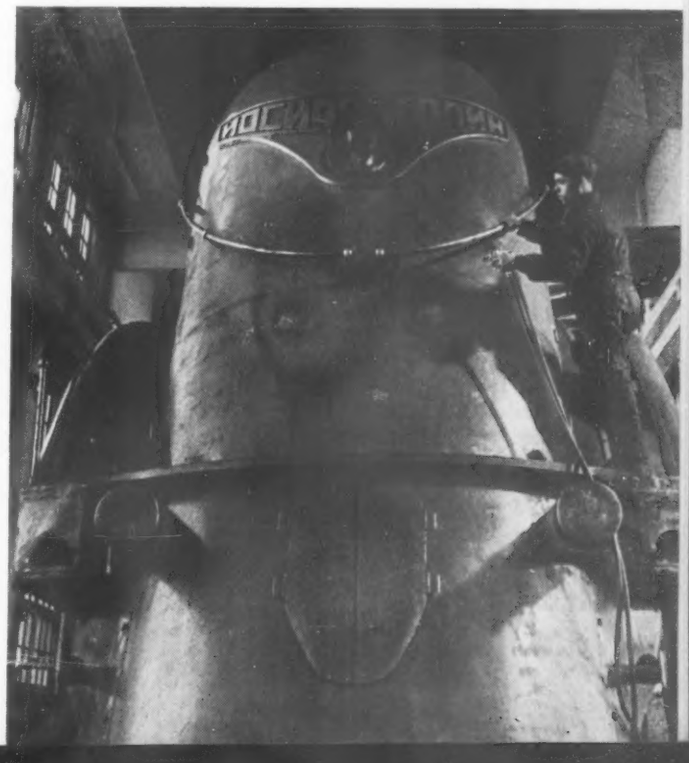
The international steel entente is now working in close co-operation with the British Iron and Steel federation, and the operation of the entente in general is satisfactory. There has been some difficulty concerning the supply of continental steel products to Great Britain under the quota system. It would appear that continental producers could sell at a more profitable price in various overseas markets than in the British market.

The combined action taken recently by the British government in lowering import duties to 2½ per cent on steel products imported under quota, and by the British Iron and Steel federation in increasing by 225,000 tons the tonnage of steel that could come under quota during the second half of the year, has acted as a valuable incentive to the Continental exporter, and in all likelihood the Continental cartel will make a serious effort to meet British requirements.

It will be recalled that the tonnage allowed annually into Great Britain at the reduced tariff is 525,000 tons. The extra tonnage includes 125,000 tons of semifinished steel, 75,000 tons of merchant bars and structural steel, and 25,000 tons of wire rods, plates and sheets, hoops and skelp. It is interesting to note that, Germany having her export trade practically assured for some time, this additional tonnage for Great Britain will be divided between France, Belgium and Luxemburg.

Earlier in the year demand for steel products from foreign markets was so great that premiums up to £2 gold were being freely offered. Lately the amount of these premiums has diminished, as demand was becoming gradually satisfied, but the official minimum prices fixed by the cartel were evidently below the level governed by the law of offer and demand. It was, therefore, resolved to incorporate with the base prices certain premiums which had been officially quoted and which ranged from 15 to 25 shillings (gold) according to product. The new prices therefore, were enforced about the middle of July.

Entering the second half, the forecast can be made that 1937 will be an outstanding year as regards steel production and prices.



STREAMLINED locomotive "Joseph Stalin" built in the October Revolution Locomotive works, city of Voroshilovgrad, Donets region, Soviet Ukraine. The locomotive was designed for a speed of 87 miles an hour. Sovfoto

July Iron Output Regains Lost Ground; Stacks Up 10

EFFECTS of the strikes which throttled operations at blast furnaces of four independent steelmakers in May and June practically were eradicated in July with the total of active stacks reaching a new high since 1929 and production climbing back within easy reach of the year's top established in May. After having risen to a high mark of 186 in April, active furnaces were set back to 170 in May on account of labor disturbances, recovered to 182 in June with breaking of the strikes, then pushed up to 192 on July 31. The latter figure was the best since October, 1929, with 203.

Average daily production of coke pig iron in the United States in July was 112,947 gross tons, this being an increase of 9104 tons, or 8.8 per cent, over the 103,843-ton daily rate of June. This compares with year's best monthly daily rate of 114,360 tons in May and 83,735 tons a day in July, 1936.

MONTHLY IRON PRODUCTION

Gross Tons

	1937	1936	1935
Jan.	3,219,741	2,029,304	1,478,443
Feb.	3,020,006	1,838,932	1,614,905
March	3,470,470	2,046,121	1,770,990
April	3,400,636	2,409,474	1,671,556
May	3,545,180	2,659,643	1,735,577
June	3,115,302	2,596,528	1,558,463
July	3,501,359	2,595,791	1,520,340
Tot. 7 mo.	23,271,694	16,175,793	11,350,274
Aug.		2,711,726	1,759,782
Sept.		2,728,257	1,770,259
Oct.		2,991,794	1,978,379
Nov.		2,949,942	2,066,293
Dec.		3,125,192	2,115,496
Total		30,682,704	21,040,483

Total production in July was 3,501,359 tons, which, against the 3,115,302 tons made in June, was a gain of 386,057 tons, or 12.4 per cent. July, however, was a one-day longer month than June. The best monthly output so far in 1937 was 3,545,180 tons in May. Production in July, 1936, was 2,595,791 tons.

For the first seven months of 1937, iron output has aggregated 23,271,694 tons, an increase of 43.8 per cent, or 7,095,901 tons, over the 16,175,793 tons in the corresponding period of 1936. The seven-month production in 1935 was only 11,350,274 tons.

Relating production to capacity, operations in July were at the rate of 82.9 per cent based on the American Iron and Steel institute's revised capacity figure as of June 30. This rate compares with 76.6 per cent in June, 84.3 per cent in May, 83.7 per cent in April and 61.5 per cent in July, 1936.

During the month, the net increase in active blast furnace was ten. Eleven steelworks or nonmerchant stacks resumed and four were blown out or banked; three merchant units were placed in operation and none was blown out.

AVERAGE DAILY PRODUCTION

Gross Tons

	1937	1936	1935	1934
Jan.	103,863	65,461	47,692	39,537
Feb.	107,857	63,411	57,675	45,385
March	111,951	66,004	57,120	52,438
April	113,354	80,316	55,719	57,873
May	114,360	85,795	55,986	66,370
June	103,843	86,551	51,949	64,563
July	112,947	83,735	49,043	39,630
Aug.	.....	87,475	56,767	34,199
Sept.	.....	90,942	59,009	29,969
Oct.	.....	96,509	63,818	30,689
Nov.	.....	98,331	68,876	31,930
Dec.	.....	100,813	68,242	33,161
Ave.	109,772	83,832	57,694	43,774

Furnaces blowing in during July were: In Ohio: River Nos. 1, 2, 3 and 4; Massillon No. 1, and Youngstown No. 5, Republic Steel Corp.; Martins Ferry, Wheeling Steel Corp.; Globe, Globe Iron Co. In Pennsylvania: Clairton No. 2, Carnegie-Illinois Steel Corp. In Illinois: South Chicago Nos. 3 and 5, Youngstown Sheet & Tube Co. In Indiana: Indiana Harbor No. 2, Youngstown Sheet & Tube Co.; Madeline Nos. 1 and 2, Inland Steel Co.

Stacks blowing out or banking were: In Ohio: Ohio No. 5, Carnegie-Illinois Steel Corp.; Lorain No. 4, National Tube Co. In Pennsylvania: Cambria G, Bethlehem Steel Co. In New York: Buffalo No. 2, National Steel Corp.

With dismantling of three additional blast furnaces, the total number of potential stacks in the United States is reduced from 240 to 237.

Carnegie-Illinois Steel Corp. is in process of dismantling its Lucy Nos. 1 and 2 units at Pittsburgh. The plant last operated in 1930. No. 1 stack was erected in 1872 and last rebuilt in 1908; No. 2 was built in 1877 and last rebuilt in 1898. Combined annual capacity was 113,900 gross tons of spiegeleisen, ferromanganese and ferrosilicon.

Woodward Iron Co. has sold its Vanderbilt No. 2 furnace at East Birmingham, Ala., for scrap, as reported in STEEL, July 12, page 25. This stack, inactive since 1926, was built in 1908, and had an annual capacity of 95,000 tons of basic and foundry iron. No. 1 stack at this same plant, also being dismantled, was removed from the list in May, 1936. See illustration page 17, this issue.

JULY IRON PRODUCTION

	No. in blast last day of July	No. in blast last day of June	Total tonnage Merchant	Total tonnage Nonmerchant
Ohio	42	36	112,502	630,077
Penna.	65	65	*136,491	*1,014,135
Alabama	18	18	*113,651	*126,797
Illinois	16	14	86,177	253,524
New York	13	14	67,998	193,259
Colorado	3	3		
Indiana	15	12	*19,882	*515,566
Maryland	6	6		
Virginia	1	1		
Kentucky	2	2		
Mass.	1	1		
Tenn.	0	0		
Utah	1	1	26,053	205,247
West Va.	3	3		
Michigan	4	4		
Minnesota	2	2		
Missouri	0	0		
Total	192	182	*562,754	*2,938,605

*Includes ferro and spegeleisen.

RATE OF OPERATION

(Relation of Production to Capacity)

	1937[1]	1936[2]	1935[3]	1934[4]
Jan.	76.6	48.2	34.2	28.3
Feb.	79.5	46.6	41.4	32.5
March	82.5	48.5	41.0	37.5
April	83.7	59.1	40.0	41.4
May	84.3	63.1	40.2	47.5
June	76.6	63.6	37.2	46.3
July	82.9	61.5	35.2	28.4
Aug.	...	64.3	40.7	24.5
Sept.	...	66.9	42.5	21.5
Oct.	...	71.0	45.8	22.1
Nov.	...	72.3	49.5	22.8
Dec.	...	74.2	49.0	23.7

[1]First half based on capacity of 49,512,737 gross tons, Dec. 31, 193[illegible]—second half on capacity of 49,727,737 tons, June 30, 1937; [2]capacity of 49,717,893 tons, Dec. 31, 1935; [3]capacity of 50,845,741 tons, Dec. 31, 1934; [4]capacity of 50,975,561 tons, Dec. 31, 1933. Capacities by American Iron and Steel Institute.

Locomotives Replaced by Trucks in Iron Ore Mine

Oliver Mining Co. recently placed a 25-ton truck in the bottom of an open pit mine near Eveleth, Minn., to haul ore ordinarily hauled by locomotives. Four such trucks will be used in the mine, company officials have announced.

The company is turning to the heavy trucks to transport ore more economically in the Spruce mine from the loading shovel to the crusher and belt conveyor which carries the ore to the surface. One man operates the 250-horsepower truck, which is operated 175 feet below the surface.

Three Steel Labor Hearings In Week

HEARINGS on complaints filed by the national labor relations board against three steel companies will be under way at the same time this week, according to schedule announced in Washington.

Hearing of the charges filed with the board by the Steel Workers Organizing committee against the Weirton Steel Co., is set for Aug. 9 before an examiner for the board at New Cumberland, W. Va. Three hundred steelworkers were named in the complaint which was formally issued against the company last week, alleging violations of the labor relations act.

The board also announced that the hearing on its complaint against Republic Steel Corp. will be resumed Aug. 9 in Canton, O., before Examiner John T. Lindsay.

At Chicago the hearing on the complaint against Inland Steel Co. will continue this week.

Republic Steel Corp.'s reply to the board's complaint denies the charges and also the board's jurisdiction. It states:

"The national labor relations act, pursuant to which the national labor relations board was created and vested with certain jurisdiction, power and authority, is altogether void and of no validity in law, as construed and applied by the board, because its terms and provisions if enforced, would deprive employers sought to be made subject to its terms, of due process of law, in violation of the 5th amendment of the constitution of the United States."

It is pointed out that the law gives an employe the right to file charges against his employer, without giving the employer a corresponding right against his employe; it provides for a hearing of the charges "with no restriction or limitation whatsoever as to the kind or character of evidence to be considered by the board in support of or in answer to such charges."

HEPPENSTALL PLANT DOWN FOR INDEFINITE PERIOD

As a result of a strike which began July 12 the plant of the Heppenstall Co., Pittsburgh, will remain closed indefinitely.

C. W. Heppenstall, president, in a statement said the company would not agree to a consent election conducted by the national labor relations board at this time because the strike "has aroused sympathies on both sides which would make impartial balloting impossible." The company will continue to bargain individually and collectively with its employes, he said.

At 2 p.m. Monday, July 12, Mr. Heppenstall stated, the company and the CIO met at company offices to arrange an election under the supervision of the labor board. The conference proceeded amicably until 2:40 p.m. when it was interrupted by a telephone message reporting that pickets were preventing workmen from entering the plant.

Asked about this, CIO representatives admitted the strike had been authorized and called before the request for the conference was made. The company said all negotiations would be canceled unless picketing stopped immediately. It continued and all operations and negotiations stopped at 3:15 p.m.

It was pointed out that during the past 45 years the company has employed three generations of workers without a major interruption until the present strike.

WHEELING STEEL RAISES MINIMUM WAGE TO $5

Effective Aug. 1, the $5 a day minimum wage was established in all plants of Wheeling Steel Corp., affecting 1546 employes. This will add approximately $250,000 annually to the company's payroll. Under the SWOC contract signed by the company several months ago, a $4.48 basic minimum had been established. Because of a differential provided under the old steel code of NRA days, the region where Wheeling Steel mills are located established a slightly lower minimum rate than mills in some other districts.

FOUR WARREN STRIKERS GO TO PEN FOR BOMBING

Four CIO steel strikers last week started serving penitentiary sentences of one to 20 years following conviction for illegal possession of explosives in the strike against the Republic Steel Corp. plant at Warren, O. The quartet pleaded guilty in connection with three bombings. Two more strikers were placed on probation, a third awaits sentence.

BOSTON STRUCTURAL SHOPS SIGN WITH UNION

All but two of the largest structural shops in the Boston district, down several weeks because of strikes, had signed union contracts late last week and resumed operations. About 40 shops were affected at one time or another, the smaller being the first to sign. Settlements at the remaining two are expected momentarily.

SWOC SEEKS ELECTION IN CRUCIBLE STEEL PLANTS

The Steel Workers Organizing committee last week petitioned the national labor relations board for elections in plants of the Crucible Steel Co. of America, alleging that though the company signed a contract with SWOC May 24 it has since engaged in "discrimination."

Not a Furniture Store, but an Industrial Plant

LIFE in a strikebound plant is made easier by some of the comforts of home. These sleeping accommodations provided rest for 35 foremen and assistants stationed in the Heppenstall Co. shops, Pittsburgh, following the start of a CIO strike July 12. Only a few now remain, the company last week deciding to close for an indefinite period. Strict attention was given to the health of the men, meals being arranged by a paid dietitian

Steel Exports Are Above 1929 Rate

IRON and steel exports, exciuding scrap, in June totaled 306,237 gross tons, 195 per cent in quantity and 137 per cent in value over June, 1936. Tonnage was 51 per cent over the total for June, 1929, according to the bureau of foreign and domestic commerce.

Compared with May, 1937, there was a decline of 7.5 per cent in volume, and 6.7 per cent in value.

Exports for six months, excluding scrap, aggregated 1,370,033 tons, which is 147 per cent in volume and 107 per cent in value over the corresponding period of 1936. Compared with 1,339,725 tons in the first half of 1929, this year made a gain of 2.3 per cent in volume, though value was 16 per cent lower.

Scrap exports in June continued close to the high rate of previous months with 520,297 tons, compared with 638,108 tons in May and 191,173 tons in June, 1936. In six months this year scrap exports totaled 2,172,660 tons, compared with 1,072,028 tons in the first half of 1936. The half-year total in 1937 was about 200,000 tons above scrap exports for the entire year, 1936.

UNITED STATES EXPORTS OF IRON AND STEEL PRODUCTS

Gross Tons

Articles	June 1937	May 1937	Jan. thru June '37
Pig iron	105,194	117,598	305,851
Ferromanganese and spiegeleisen	104	6	1,336
Other ferroalloys	279	269	1,169
‡Ingots, blooms, etc:			
Not cont. alloy	17,009	24,480	58,860
Alloy incl. stainless	2,614	336	3,861
Bars, iron	130	571	1,278
Bars, concrete	1,701	2,100	8,504
‡Other steel bars:			
Not cont. alloy	10,380	9,976	49,318
Stainless steel	68	8	149
Alloy, not st'nless	521	870	3,437
Wire rods	3,968	5,872	24,364
Boiler plate	659	430	2,258
‡Other plate, not fab.:			
Not cont. alloy	31,563	24,881	127,207
Stainless steel	5	5	21
Alloy, not st'nless	17	852	2,180
Skelp	8,396	10,084	39,933
Sheets, galv. iron	158	516	2,730
Sheets, galv. steel	7,001	5,162	34,095
‡Sheets, black steel			
Not cont. alloy	24,380	22,570	120,892
Stainless steel	83	79	348
Alloy, not st'nless	566	1,098	1,805
Sheets, black iron	1,990	560	5,595
‡Strip steel, cold-rolled:			
Not con. alloy	2,687	2,28	14,827
Stainless steel	16	44	200
Alloy, not st'nless	60	36	332
‡Strip steel, hot-rolled:			
Not cont. alloy	7,347	5,712	44,978
Stainless steel	2	.....	97
Alloy, not st'nless	188	7	436
Tin plate, taggers' tin	23,207	28,414	149,658
Terne plate	290	498	3,065
Tanks, except lined	2,772	3,074	14,680
Shapes, not fab.	11,623	8,677	59,704
Shapes, fabricated	2,886	3,082	16,753
Plates, fabricated	1,127	684	9,759
Metal lath	131	304	1,063
Frames and sashes	149	53	457
Sheet piling	101	175	2,151
Rails, 60 lb.	3,728	8,066	35,910
Rails, under 60 lb.	1,726	1,346	6,640
*Rails, relaying	1,572	74	11,747
Rail fastenings	659	1,112	5,138
Switches, frogs, etc.	201	267	1,127
Railroad spikes	260	508	1,560
R.R. bolts, nuts, etc.	82	156	483
Boiler tubes, s'mless	1,078	1,356	6,121
Do. welded	.....	41	216
Pipe:			
S'ml's c'sing oil line	4,926	5,914	35,888
Do. Welded	81	117	3,615
Do. S'mless black	931	926	6,793
Pipe fittings:			
Mall. iron screwed	406	664	2,494
Cast iron screwed	181	264	1,462
Pipe, fittings for:			
Cast-iron pressure	1,254	2,336	12,249
Casf-iron soil	411	1,284	4,336
Pipe—welded:			
Black steel	1,620	2,369	10,432
Black wr'ght iron	170	2,146	2,894
Galv. steel	1,734	1,845	9,657
Galv. wrou't iron	65	234	1,070
Pipe and fittings:			
Riveted iron or steel	107	101	378
Wire:			
Plain iron or steel	2,425	3,576	17,089
Galvanized	2,166	2,099	11,351
Barbed	2,698	3,778	18,870
Woven wire fencing	311	308	1,889
‡Woven wire screen:			
Insect	65	64	258
Other	78	118	649
†Wire rope	517	416	2,753
†Wire strand	27	58	277
*Card clothing	1	3	31
Other wire	1,355	850	4,815
Wire nails	1,966	1,980	11,214
Horseshoe nails	50	78	433
Tacks	24	22	149
Other nails, staples	217	256	1,584
Bolts, etc.	1,019	1,321	5,940
Castings:			
‡Gray i'n, semi-st'l	315	471	2,932
Malleable iron	159	531	2,576
‡Steel, not alloy	152	226	1,046
Alloy incl. st'nless	92	179	832
Car wheels, tires, axles	1,446	1,504	8,123
Horseshoes, calks	22	5	157
‡Forgings, n.e.s.:			
Not alloy	532	671	3,080
Alloy incl. st'nless	36	114	424
Total I.& S. prod.	306,237	331,114	1,370,033
Scrap, iron, steel	514,651	630,671	2,134,765
Scrap, tin plate	1,712	2,598	9,407
*Tin plate circles, strips, cobbles	1,193	897	6,758
Waste-waste tin plate	2,741	3,942	21,730
Total scrap	520,297	638,108	2,172,660
GRAND TOTAL	826,534	969,222	3,542,693
Iron ore	202,124	212,475	496,002

‡No comparisons available. *New class. †No distinction prior to 1936.

Financial

MIDLAND STEEL PRODUCTS PROFITS $654,575

Midland Steel Products Co. in its statement of earnings for the second quarter of 1937 reported net profit of $654,575 after all charges, including reserves for federal tax but before provisions for tax on undistributed earnings. This, according to E. J. Kulas, president, compares with a net profit of $558,215 for the first quarter of 1937. Net profit for the first half of the year was $1,212,790.

SHARON STEEL EARNINGS $696,075 IN QUARTER

Sharon Steel Corp., Youngstown, reports its highest quarterly earning since the world war, with net profit of $696,075 for the second quarter, after all charges but before the surtax on undistributed profits. This figure is roughly $41,000 more than a preliminary estimate, and compares with $475,778 in the first quarter and $268,335 in the second quarter of 1936. Profits of $1,148,036 for the first six months of 1937 is within $157,000 of the entire 1936 earnings.

MERCER OUT OF RECEIVERSHIP

An order ending the receivership of the Mercer Tube & Mfg. Co., Sharon, Pa., was signed Aug. 4 by Judge R. M. Gibson in United States district court in Pittsburgh. The court acted on a petition from receivers who reported that all credi-

First-Aid Methods Demonstrated at Bethlehem Plant

ACCORDING to the National Safety council the accident rate in the steel industry is 40 per cent less than the general average for all industries. This is the result of extensive safety work begun years ago and constantly encouraged. Cash prizes were awarded to winning teams in the first-aid meet staged recently at Bethlehem Steel Co.'s Bethlehem plant. Dr. Loyal A. Shoudy, chief of the company's medical service, watches the steelworkers apply splints

tors had been paid in full. The company, which went into receivership four years ago, owns the Sharon Steel Products Co. and McDowell & Co.

CONTINENTAL CAN TO ASK NEW STOCK AUTHORIZATION

Continental Can Co. Inc. has called a special stockholders' meeting for Sept. 28 to ask authorization for an issue of 350,000 no par preferred shares. If obtained, the company plans to sell 200,000 shares, proceeds of which partially will be used to pay bank indebtedness of $14,000,000 incurred during the year primarily for carrying increased inventories. Remainder, together with funds released through inventory reduction, will be used to finance a $10,000,000 improvement and expansion program now under way.

Production

DESPITE slightly shortened production schedules in some of the smaller centers, due to necessity for furnace repairs, the national operating rate last week advanced ½-point to 84½ per cent by increased rates in several producing centers.

Central eastern seaboard—Unchanged at 71 per cent with one mill continuing to close Thursday night and reopen Tuesday morning, initiated after July 4.

Cleveland—Advanced 3 points to 85 per cent as effects of labor disturbance disappeared. This rate is practical capacity.

Cincinnati—Off 4 points to 89 per cent, with 21 open hearths active. The same rate is scheduled for this week.

Youngstown—Unchanged at 80 per cent, with 70 of 83 open hearths operating. The same rate is scheduled for this week.

St. Louis—Down 3 points to 77 per cent, compared with 93 per cent at the middle of July.

Detroit—Off 2 points to 90 per cent, two open hearths being down all week for repairs, probably resuming this week.

New England—Off 25 points to 65 per cent, four open hearths off for repairs.

Chicago—Increased 1 point to 86 per cent, equal to the previous high point this year. This rate expected to continue for several weeks.

Buffalo—Down 2 points because of furnace repairs but no further reduction expected for several weeks.

Pittsburgh—Ingot operations for the third consecutive week were unchanged at 83 per cent. The leading interest continued to operate at around 85 per cent and the leading independent between 80 and 82.

District Steel Rates

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended Aug. 7	Change	Same week 1936	Same week 1935
Pittsburgh	83	none	71	41
Chicago	86	+1	71½	53
Eastern Pa.	71	none	50½	31½
Youngstown	80	none	77	51
Wheeling	93	+1	92	79
Cleveland	85	+3	82	62
Buffalo	86	—2	81	37
Birmingham	86	none	61½	35½
New England	65	—25	68	45
Detroit	90	—2	100	88
Cincinnati	89	—4	72	†
St. Louis	77	—3	†	†
Average	84½	+½	71½	48

†Not reported.

Forty-eight blast furnaces are active in the district.

Wheeling—The operating figure in the Wheeling district rose 1 point to 93 per cent of capacity.

Republic Plans $750,000 Expansion in Youngstown

Republic Steel Corp., Cleveland, has announced improvements to cost about $750,000 in its Youngstown, O., plants. Included are the rebuilding and enlarging of No. 3 blast furnace to increase capacity from 500 to 825 tons a day; installation of a new heating furnace and other improvements in the 10-inch skelp mill bessemer plant, increasing capacity by 3000 tons per month; and improvements for finishing pipe in the electric weld tube mills.

Structure of the No. 3 blast furnace is being built to permit a 1000 ton a day capacity later.

In addition new equipment is being purchased and minor improvements made in other departments.

See New Record In Steel Ingots

PRODUCTION of steel ingots in July totaled 4,556,596 gross tons, 9 per cent over the 4,183,762 tons made in June. This compares with 3,914,370 tons in July, 1936 and 4,850,583 tons in July 1929.

July production was at 87.49 per cent of capacity, against 74.46 in June, and 67.61 per cent in July, 1936. The daily rate in July was 1,030,904 tons, compared with a daily rate of 975,236 tons for June.

For several months production totaled 33,321,229 tons. This is within 565,628 tons of equaling the output in the first seven months of 1929. In the late months of 1929 there was a sharp decline, while the outlook this year is for sustained and perhaps increasing output, indicating a new yearly record.

Steel Ingot Statistics

Monthly Production—Complete for Bessemer; Open Hearth, Calculated from Reports of Companies Making 98.03 per cent

1937	—Open Hearth— Gross tons	Per cent of capacity	—Bessemer— Gross tons	Per cent of capacity	— Total — Gross tons	Per cent of capacity	Weekly production, all companies, gross tons	Number of weeks in month
Jan.	4,433,145	84.20	291,794	54.30	4,724,939	81.43	1,066,578	4.43
Feb.	4,082,163	85.87	331,669	68.35	4,413,832	84.25	1,103,458	4.00
March	4,812,879	91.42	403,787	75.14	5,216,666	89.91	1,177,577	4.43
April	4,681,677	91.83	390,198	74.98	5,071,875	90.27	1,182,255	4.29
May	4,767,269	90.55	386,290	71.88	5,153,559	88.82	1,163,332	4.43
June	3,899,190	76.48	284,572	54.68	4,183,762	74.46	975,236	4.29
July	4,220,561	80.09	336,035	62.67	4,556,596	87.49	1,030,904	4.42
7 mos.	30,896,884	....	2,424,345	....	33,321,229	....	1,100,007	30.29
1936								
Jan.	2,843,415	54.76	196,389	32.21	3,039,804	52.39	686,186	4.43
Feb.	2,754,446	56.76	202,445	35.55	2,956,891	54.53	714,225	4.14
March	3,148,813	60.64	185,040	30.33	3,333,853	57.46	752,563	4.43
April	3,627,830	72.14	304,775	51.62	3,932,605	69.99	914,593	4.29
May	3,735.283	71.93	302,092	49,55	4,037,375	69.58	911,371	4.43
June	3,640,672	72.40	334,897	56.72	3,975,569	70.75	926,706	4.29
7 mos.	23,338,223	.	1,852,244	....	25,190,467	....	827,817	30.43
July	3,587,764	69.25	326,606	53.69	3,914,370	67.61	885,604	4.42
Aug.	3,833,727	73.83	350,560	57.50	4,184,287	72.11	944,534	4.43
Sept.	3,848,340	76.71	303,048	51.45	4,151,388	74.05	969,950	4.28
Oct.	4,216,536	81.20	317,710	52.11	4,534,246	78.15	1,023,532	4.43
Nov.	3,993,472	79.42	329,553	55.82	4,323,025	76.94	1,007,698	4.29
Dec.	4,119,025	79.50	305,342	50.20	4,424,367	76.42	1,000,988	4.42
Total	43,349,323	70.74	3,458,457	48.07	46,807,780	68.36	895,329	52.28

Percentages of capacity for 1937 are calculated on weekly capacities of 1,188,452 gross tons for open-hearth ingots, 121,308 tons for bessemer and 1,309,760 tons total, based on annual capacities as of Dec. 31, 1936, as follows: Open-hearth ingots, 61,965,862 gross tons; bessemer, 6,325,000 tons; for 1936, on weekly capacities of 1,172,160 gross tons open-hearth ingots, 137,624 tons bessemer, 1,309,784 tons total, based on annual capacities as of Dec. 31, 1935, as follows: Open-hearth ingots 61,280,509 gross tons, bessemer 7,195,000 gross tons.

Men of Industry

DR. A. ALLAN BATES recently joined the staff of Westinghouse Research Laboratories as manager of the chemical and metallurgical division. Dr. Bates formerly was professor of metallurgy at Case School of Applied Science and served as consultant for a number of companies in the Cleveland area. Previously he was employed by the National Tube Co., and was also research metallurgist for the National Malleable & Steel Casting Co.

Dr. Bates was graduated from Ohio Wesleyn in 1923. He then attended Case School and received a B. S. in metallurgy. From 1930 to 1931 he attended the Ecole De Metallurgie, University of Nancy, France, from which he received his degree of Doctor of Science in metallurgy.

♦ ♦ ♦

Harvey T. Harrison has been appointed sales manager, Duraloy Co., Scottdale, Pa.

♦ ♦ ♦

J. P. Boore has been appointed assistant general sales manager, Babbock & Wilcox Tube Co., Beaver Falls, Pa.

♦ ♦ ♦

W. D. Heist has been named purchasing agent, Alan Wood Steel Co., Conshohocken, Pa. He succeeds J. P. Platt, who has resigned. Mr. Heist has been with the company approximately 20 years.

♦ ♦ ♦

Herman M. Griggs, for the past 20 years manager of the Ore and Coal exchange, Cleveland, has retired because of ill health. Previous to becoming manager of the exchange, when it was formed in 1917, Mr. Griggs was general coal and ore agent for the New York Central railroad.

♦ ♦ ♦

Samuel B. Webster, until Aug. 1 a special engineer in the Pittsburgh offices of Carnegie-Illinois Steel Corp., has been made chief engineer of Vandergrift works. He began his engineering career as a draftsman with Carnegie Steel Co. in 1908. Three years later he joined American Bridge Co., and following service with other firms, entered the army in 1917. He returned to Carnegie Steel in 1921 as a draftsman and in 1930 was promoted to special engineer.

♦ ♦ ♦

Paul Weeks, who was manager of the Washington office of Caterpillar Tractor Co., Peoria, Ill., until his transfer to the Peoria offices two years ago, has returned to Washington, relieving E. B. English, who has been transferred to Peoria to become manager of federal and state sales.

Dr. A. Allan Bates

H. H. Howard, in the employ of the company since 1926 in export and domestic sales capacities, has been appointed manager, engine sales division.

♦ ♦ ♦

E. G. Howell, formerly vice president of Erman Howell & Co., Chicago, has been elected vice president, Merchants Steel & Supply Co., that city, dealer in scrap materials and relaying rails.

Mr. Howell started in 1905 as office boy in the executive department of the Republic Iron & Steel Co. Later he became chief clerk of the Chicago district branch, and in 1911 joined the sales force of that district. During the war he was a captain of infantry, stationed at Camp Grant, Rockford, Ill. From 1919 to 1922 he was assistant treasurer, Briggs & Turivas, Chicago; in 1922 he joined the raw material department, Chicago office of Hickman Williams Co., and in October, 1925, was appointed manager of this department. From 1926 to June of this year he had been vice president of Erman Howell & Co.

E. G Howell

♦ ♦ ♦

Harold P. Ingram, heretofore superintendent of the roll department, Homestead works, Carnegie-Illinois Steel Corp., has been appointed superintendent of maintenance. W. H. Stewart, roll designer and draftsman, succeeds Mr. Ingram as superintendent of the roll department.

In his new position, Mr. Ingram will supervise the electrical and mechanical maintenance and the roll department. He began his career in the engineering department at the East Pittsburgh plant of Westinghouse Electric & Mfg. Co. in 1913, and in 1915 entered Homestead works as an apprentice roll turner.

Mr. Stewart, a graduate of the University of Pittsburgh in 1928, entered the employ of American Steel & Wire Co. at Farrell, Pa., the same year; in 1929 was transferred to the wire company's Worcester, Mass., plant, and in September of that year went to Homestead as roll designer.

Died:

FITZ WILLIAM SARGENT, 78, whose death in Mahwah, N. J., July 25, was noted briefly in STEEL, Aug. 2, was known as the "father of brake shoe engineering." Since 1902 he had been chief engineer for the American Brake Shoe & Foundry Co., New York.

Graduated from Lehigh university in 1879 with a degree in civil engineering, Mr. Sargent helped locate and build the Denver & Rio Grande railroad, the Mexican National railway and parts of the Norfolk & Western railway. In 1884 he became engineer of tests with the Chicago, Burlington & Quincy railroad where he participated in the famous Burlington brake trials which determined the type of braking equipment since used.

Practically every major development in this field is said to have been due in part to Mr. Sargent's research and tests. He was responsible for the expanded metal type of brake shoe which contributed largely to structural strength and durability. He also had a part in the steel back reinforcement, a contribution to safety as well as wearing qualities, and developed some of the early brake shoe testing machines which he improved from time to time to meet changing railroad conditions.

♦ ♦ ♦

William E. Gibson, for 37 years district sales manager, South Chester Tube Co., Pittsburgh, July 28 in Pittsburgh.

♦ ♦ ♦

Joseph W. Thropp, 51, secretary

and treasurer, Wm. R. Thropp & Sons Co., maker of machinery, Trenton, N. J. in that city, July 28.

♦ ♦ ♦

John H. Smith, 52, president and treasurer, American Steel Engineering Co., Philadelphia, July 25. He began his career with Twin City Rapid Transit Co. and later was manager at Dallas, Tex., for many years for Truscon Steel Co. He formed American Steel Engineering Co. in 1919.

♦ ♦ ♦

David J. Scott, 56, chief clerk, bar and strip production bureau, Carnegie-Illinois Steel Corp., Pittsburgh, Aug. 3. He was an employe of that corporation, and its predecessors 38 years, starting in 1899 with the American Steel Hoop Co. His business activities for many years involved handling the distribution and scheduling of material.

Meetings

A. F. A. TO HOLD CONFERENCE AT BATTELLE INSTITUTE

American Foundrymen's association, in co-operation with Battelle Memorial institute, Columbus, O., will sponsor a technical foundry conference at the institute, Sept. 30-Oct. 1. Differing from previous joint conferences of the association with its chapters, technical schools and other engineering and educational societies, the program will be directed along metallurgical lines. Discussion topics will include steel, gray cast iron and nonferrous metals.

Meetings of various A.F.A. committees are scheduled for the morning of Sept. 30, with the formal program starting in the afternoon and continuing on the following day. A dinner will be served on the evening of the first day. Arrangements for the conference are under the direction of Dr. C. H. Lorig and C. E. Sims of the institute.

Discussion subjects are as follows: Effects of alloys on cast steels; effects of aluminum on physical properties of steel castings; effects of chromium in copper-base alloys; melting methods in the nonferrous casting industry; cupola cast irons; electric furnace irons; and fundamental structures of gray cast iron.

BLAST FURNACE AND COKE GROUP TO ELECT OFFICERS

Blast Furnace and Coke Association of the Chicago District will hold its eleventh annual golf tournament at the Olympia Fields country club, Chicago, Aug. 24. The annual election of officers of the association will follow dinner. B. A. Standerline, Wisconsin Steel Works, South Chicago, Ill., is secretary.

"The Invisible Kitchen"—Made of Steel

COMPLETE kitchenette facilities, electric stove, oven, sink, drainboard, shelves and refrigerator, are contained in this all-steel cabinet. Sink and work surfaces are stainless steel. When not in use it folds into an attractive piece of furniture. Electric Invisible Kitchen Co., Chicago, is the manufacturer. Photo courtesy Electromet Review

Activities of Steel Users and Makers

KOPPERS CO., Pittsburgh, has been awarded four contracts totaling $1,592,000 through its Bartlett-Hayward division, Baltimore. These include a chemical plant for the Davison Chemical Corp., a gas utility project for the Washington Gas Light Co., Washington, and two jobs for the government's Marshall Ford dam, Rutledge, Tex. The division has just completed a $1,150,000 contract for the Fort Peck dam, Montana. This consisted of fabrication and installation of eight gates, weighing 50 tons each, with steel and bronze tunnel linings, erection of four concrete shaft control buildings, a concrete transformer house and all electric transformers, power lines and controls. Materials used include 450 tons reinforcing steel, 350 tons structural steel, 200 tons steel liners and 675 tons bronze liners and guides.

♦ ♦ ♦

Chicago Pneumatic Tool Co., New York, has moved its Buffalo sales and service branch to 128 West Chippewa street.

♦ ♦ ♦

Carnegie-Illinois Steel Corp., Pittsburgh, has transferred the Atlanta, Ga., office staff to Birmingham, Ala., under the direction of Meryl H. Geisking, manager of sales. J. T. Moore, who has been in charge at Atlanta, will be associated with Mr. Geisking.

♦ ♦ ♦

Hetz Construction Co., Warren, O., has moved its yard and office from Niles, O., to Griswold street, Northeast, Warren, O. The company has purchased the boiler house and old gas producers from National Tube Co., Lorain, O., the scrap from which will be repurchased by the Tube company.

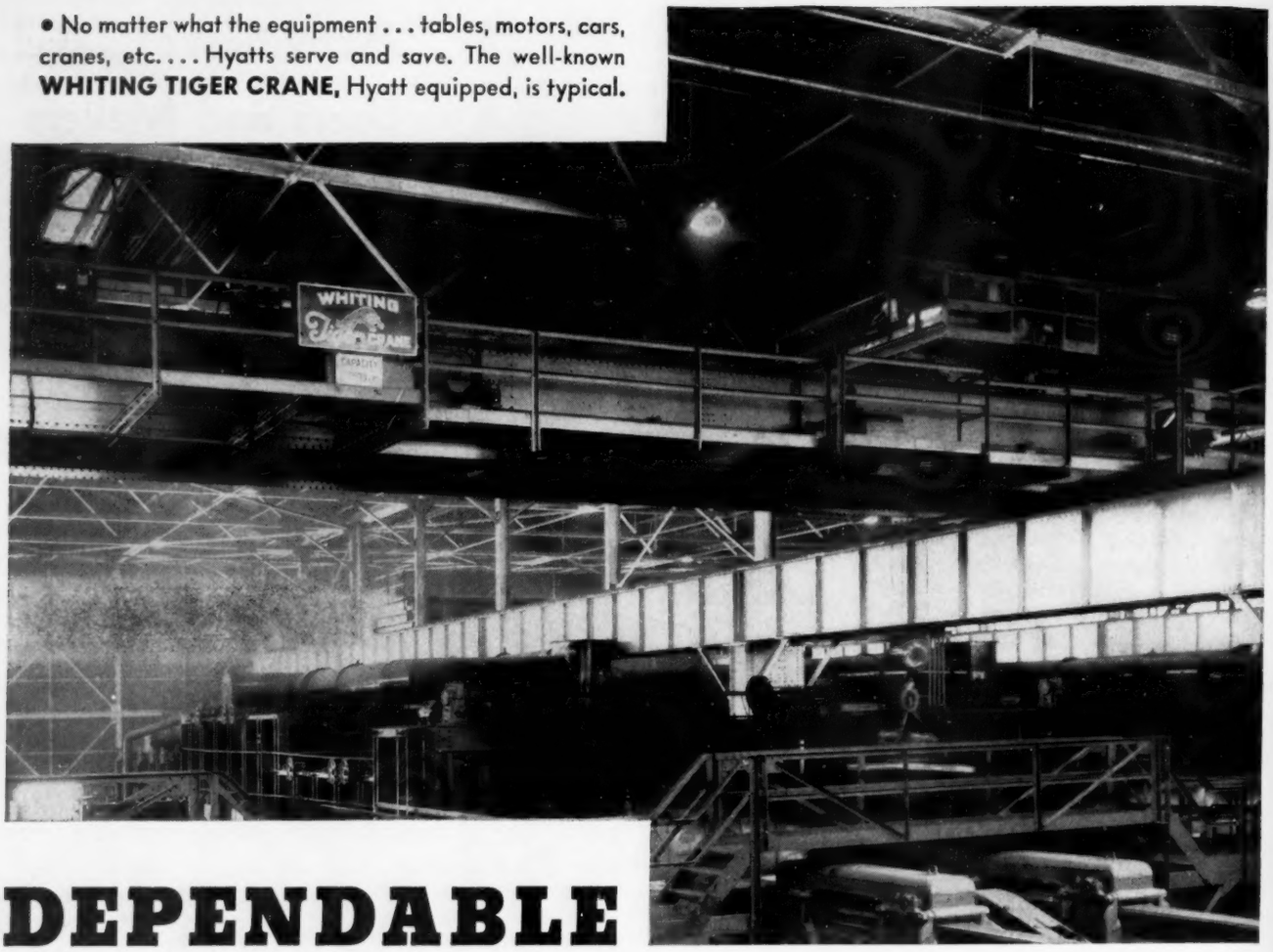
♦ ♦ ♦

Jones & Laughlin Steel Corp., Pittsburgh, has established a district sales office in Tulsa, Okla. Carl E. Swindler has been appointed district sales manager in charge. Mr. Swindler has been employed by the corporation for a number of years and during his service has always been identified with that particular territory.

♦ ♦ ♦

Link Belt Co. is remodeling its Pershing Road foundry in Chicago to provide 40 per cent more floor area and to increase capacity to 1000 tons of castings per month. Work is expected to be completed Oct. 1. A new 2-story section extending the full length of the foundry will be devoted to bench and light machine molding.

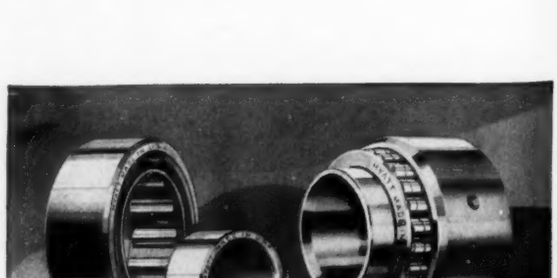
• No matter what the equipment . . . tables, motors, cars, cranes, etc. . . . Hyatts serve and save. The well-known **WHITING TIGER CRANE,** Hyatt equipped, is typical.



DEPENDABLE TEAM MATES FOR ALL YOUR EQUIPMENT!

Built for endurance . . . for tough going . . . for heavy loads . . . Hyatt Roller Bearings withstand cruel punishment which would make ordinary bearings old before their time. Day in and day out they do it, asking no time off for repairs and maintenance. Occasional lubrication is the only care they require.

Because they run so smoothly for so many years, in so many assignments, Hyatt Roller Bearings are always teamed with better-designed, longer-lived, and more dependable operating equipment. Line up with Hyatts! Hyatt Bearings Division, General Motors Corporation, Newark, Detroit, San Francisco. Hyatt Roller Bearing Sales Company, Chicago and Pittsburgh.



HYATT ROLLER BEARINGS

MIRRORS OF MOTORDOM

DETROIT

BY A. H. ALLEN
Detroit Editor, STEEL

ANOTHER three weeks will see the last 1937 models springing from production lines here and, judging by the number of new model previews now being scheduled, the first of the 1938 lines will be unveiled around Labor day. A Studebaker preview for engineers and newsmen has been set for Aug. 23; Buick probably will hold open house in Flint on Sept. 7. The rest are setting their plans accordingly.

The heat has been turned on automobile company purchasing departments and for the next few weeks they will be accounting for plenty of overtime in the effort to clean up the thousands of quotations now awaiting approval.

The central purchasing department at Chrysler, for example, has been instructed to work double time four days weekly until further notice. This means lights will be burning until about 8 p. m. until the staff can catch up with buying schedules. Cause for this piling up of work is laid at the door of the recent Chrysler strike which set the corporation back about a month in its customary routine.

Dodge To Close Aug. 27

Dodge division of Chrysler will close from Aug. 27 to Sept. 7 for the switch to new models. Currently production is strong at around 9500 cars per week, but the total for the first six months of this year showed a drop of about 10,000 from last year's first half production. Changes in the new Dodge will not go beyond revisions in the grille and a few other minor style alterations.

Included in the Dodge production figures are totals for Dodge truck output which amounts to about 2000 weekly. About a week ago graders started work on the site of the new Dodge truck plant which has now been located outside the city but close to the limits. As an outgrowth of a delicate legal situation, Chrysler officials are not yet ready to talk about this project, but will admit several tentative plant layouts have been drawn up, none of which has been approved.

Construction work will start in about 60 days, and an attempt will be made to have the plant ready for production by the end of the year when new truck models make their appearance. As intimated in this department earlier, the present Dodge truck plant will be taken over by Plymouth for commercial car production.

Some observers here believed Chrysler would proceed with construction of a plant on its downriver property, but the present location of the new Dodge plant is much better suited to being linked with the corporation's present plants in Detroit, as far as proximity and rail transportation are concerned. Lower tax rates constituted one important reason for selecting a location beyond the city limits.

Reports persist that Chrysler is contemplating introduction of a new small car, and one version is to the effect inquiries are already out for some die work, to be ready by the first of the year.

Nicely timed with publication of the installment of Walter Chrysler's biographical sketch in a weekly magazine wherein Mr. Chrysler first strikes up an acquaintance with Zeder, Skelton and Breer, the "three musketeers" of automotive engineering, was announcement of the appointment of O. M. Skelton and Carl Breer to the Chrysler board of directors. Nicholas Kelley, general

Fleet of 28 Trucks in Parade of Progress

NOW in its second tour of the country, the General Motors Parade of Progress comprises a fleet of 28 trucks and a staff of 50. Specially built trucks are required to transport the large amount of equipment and exhibits aimed to show contrasts between the old America and the new. A canvas tent housing 1000 for showing of motion pictures, 1500 folding chairs, a diesel-electric power plant, and display material such as the above 1902 model Oldsmobile are included among the caravan's properties

MIRRORS OF MOTORDOM

counsel, also has been elected to the board. All have been associated with Chrysler since the days when he reorganized Maxwell and introduced the first car to bear his name.

This series of articles by Mr. Chrysler is being followed with much interest in local circles. It is richly studded with names and events which made automotive history. Tribute is paid to C. Harold Wills, metallurgist at one time associated with Ford and later with the old Wills-St. Clair car, now active with Chrysler, for his part in developing what Mr. Chrysler terms "molo" steel. This is the alloy technically known as "amola" which Chrysler is now using widely in such parts as gears, springs and other highly stressed members of the running gear.

MAINTENANCE crews are rushed these days in plants now shut down for changeovers to new models. While rearrangement of production facilities is not as extensive as it was last year at this time, there is still plenty of shifting of machine tools and conveyors, installation of new equipment and the like.

One of the new presses which Packard has installed is a tandem-shaft four-point press measuring 200 inches between uprights; more recently the company has ordered a double-acting toggle press of considerably larger size. While 16 feet 8 inches between uprights may sound like a record size, builders of this equipment say it is a comparative baby beside some of their really large presses which run up to 350 inches between uprights.

Fisher Body is still issuing inquiries for a scattered list of machine tools for installation in various divisions, and Ternstedt likewise continues to buy equipment for its New Jersey division. It also appears Ford is about to resume work on the abandoned tool and die shop which Mr. Ford personally interrupted several months ago.

WHAT is the significance behind the increase in Ford prices announced early last week? Was it benevolence on the part of Mr. Ford, who was seeking to lead the industry to higher price levels to meet rising material and wage costs? Probably not.

Check through on this explanation: Near the end of a model run, Ford raises prices (from $15 to $35 on practically all models), thereby establishing prices on his 1938 line and stealing a march on the entire industry. Other makers have been raising delivered prices on this year's models, but have been careful not to release any formal announcements concerning them. Now they are talking still higher prices on 1938 lines. Ford can now stand pat on prices for 1938 since he has already boosted and let everyone know about it.

It is fairly certain this was the thinking until last Thursday when General Motors divisions caught on to the Ford strategy and announced price increases of their own on 1937 lines. Effective Aug. 14 LaSalle is marked up $60, and Cadillac $100. Effective Aug. 9 Olds will advance $45 on both 6's and 8's; Pontiac, the same. Buick will raise $45 on lower-price models; $100 on the higher. Chevrolet late last week was hesitating about making any announcement, although ultimately it probably will follow suit.

Next year, Ford will lengthen the wheel base of his 85 model from 112 inches to 116 or 117 inches and otherwise refine and refurbish the model to put it in a class with, say, Olds 6, Pontiac 6, Dodge or DeSoto. He will keep the smaller 60 model about as it is to meet demands of the low-price field. And in the so-called "pride of ownership" field he will have a much improved Lincoln Zephyr and the larger Lincoln 12. All in all, Ford will have the field pretty well blanketed and can offer the prospective buyer just about what he wants as far as price or performance go.

Add to this the numerous improvements which Ford is making in steelmaking and production facilities, and the total reads like a pretty fair girding for a greater slice of automobile business in 1938 than the 26 per cent he is garnering currently.

INITIAL parts releases have come through for Chevrolet and instructions call for shipments to be made Aug. 16. Thus, by next week, shipments on a wide variety of parts will be going forth to Cadillac, Olds, Pontiac, Buick and Chevrolet, for 1938 models. Many of these early releases are scheduled for the Fisher Body divisions supplying these producers. From all indications, there will be a quick shift to 1938 production and there will not even be the falling off in scrap supplies from Fisher Body that had been anticipated earlier. Flow of scrap supplies is an accurate gage of production, and is watched closely by dealers and brokers. Some of the latter are going to be surprised later this month when they find their feverish rush to buy scrap now in anticipation of shortages is slightly miscalculated.

LABOR violence flared at the Plymouth plant last week when UAW members attacked and beat the president and an organizer for a rival independent union during a lunch hour. Other clashes between the rival unionists followed and a strike was called by the UAW in a key department after four members were discharged for participation in the lunch hour fighting.

Company officials ordered the plant closed until the dispute was settled and termed the incident a "serious violation" by the UAW of its contract with the corporation. The disturbance threw 20,000 out of work, including a number at Dodge and Briggs plants.

*Buick retail sales in July showed a gain of around 35 per cent over last year. Last week Buick announced it will sponsor broadcast of the Louis-Farr fight in New York Aug. 26, making the fourth championship bout it has broadcast.

Automobile Production

Passenger Cars and Trucks—United States and Canada
By Department of Commerce

	1935	1936	1937
Jan.	300,335	377,244	399,634
Feb.	350,346	300,810	383,698
March	447,894	438,943	519,177
April	477,059	527,625	553,415
May	381,809	480,518	540,357
June	372,085	469,368	521,139
6 mos.	2,329,528	2,594,508	2,917,420
July	35,297	451,206	†452,309
Aug.	245,075	275,934	.....
Sept.	92,728	139,820	.....
Oct.	280,316	230,049	.....
Nov.	408,550	405,799	.....
Dec.	418,317	519,121	.....
Year	4,119,811	4,616,437	.....

Estimated by *Ward's Automotive Reports*

Week ended:	
July 10	100,981
July 17	115,380
July 24	88,055
July 31	86,448
Aug. 7	79,736

	Week ending Aug. 7	July 31
General Motors	48,925	48,892
Ford	650	655
Chrysler	21,900	26,550
All others	8,261	10,351

†Estimated.

WINDOWS OF WASHINGTON

BY L. M. LAMM
Washington Editor, STEEL

WASHINGTON

EVERYONE on Capitol Hill is now definitely talking about adjournment. Following a conference a week or so ago with senate leaders the President insisted on some of his legislative program going through. It is understood that both Majority Leader Barkley in the senate and Bankhead in the house were pessimistic as to what could be done.

However, with passage by the senate of the labor bill, Barkley exclaimed that the congress was just that much nearer adjournment. The inside story here appears to be that the leaders hope they will get away the third week in August with some hope that it may be sooner.

There are still a few bills to be disposed of, some members of both houses having pet schemes they want to get through. If the latter insist, it is possible that they may hold things up for a while.

All kinds of acrimonious remarks are coming forth in both houses of congress. Representative Gifford, Massachusetts, got a good laugh from both sides of the aisle last week when he told the house that Jefferson had founded the democratic party and that Roosevelt had dumbfounded it.

Plenty of Work Ahead

In addition to the wages and hour bill which is going along fairly nicely from the standpoint of administration leaders there is still the housing legislation to get through, the court reform bill and considerable talk about the tax loophole plugging bill. However, chiefs of the house ways and means committee think that it will take until September to get this latter ready. If that is the case it will probably go over until the next session, although no one has said anything officially about this yet.

It is the belief of Washington representatives of business that the 70-car train length bill which passed the senate and is now pending in the house, will hamper continued cheap movement of basic commodities and raw materials. Because of the increase in number of trains required it also would be adverse to safety especially at grade crossings. Whether this will be taken up by the house before adjournment is uncertain.

HOUR-WAGE BILL HAS PRESIDENT'S APPROVAL

After a week of wrangling the senate passed the hours and wages bill, with the 40-40 provision. This stipulates that the board shall not set minimum wages higher than 40 cents per hour or a maximum work week shorter than 40 hours per week.

The 40-40 provision is the idea of the President and is said to be just what he wants. The labor bill passed the senate only after some of the leading southern democrats had done all they could to stem the tide in favor of its passage and after a schism developed within the A. F. of L.

Even while William Green, president of the federation, was giving out a statement to the press to the effect that he would rather have the senate bill than none at all, some of the federation lobbyists were going the rounds of the senate telling its members that the labor organization wanted the bill recommitted, which would have meant its death for this session.

As the bill passed the upper house it was laden with amendments extending all kinds of immunity to farm labor. Also, as the bill passed the senate, it contained an entirely new child labor provision. Under this amendment it bars shipments of child labor goods in interstate commerce, with a separate section preventing such shipments into states banning child labor.

There was much confusion in the house on the labor matter about midweek when the house labor committee met to act on the bill. Just before the committee went into executive session Mr. Green rushed into the committee room, breathless, it is said, and told its members he had just come from the White House and the President asked that the vote be delayed for one day. Also he, Green, offered some amendments which he stated the President endorsed.

At the moment this is written the house committee has not made its report but it has acted by accepting the senate bill and throwing out its own bill, which was much more drastic.

The amendments which were proposed by Mr. Green included;

"1. To make it clear that there shall be no setting aside or interference with collective bargaining agreements and minimum wages-maximum hours therein agreed to.

"2. That in fixing minimum rates the board could not fix any minimum wages higher than any collective bargaining rates in the vicinity. There shall be no regional discrimination and the prevailing rates shall be recognized.

"3. Elimination of the section which amends the labor standards of the Walsh-Healey government contracts act (which requires a 40-hour week in firms dealing with the government)."

President Agrees with Principles

At a press conference after his conference with Mr. Green, the President said that he had not actually seen the amendments but that he agreed with the principles involved.

There has been much trouble about this bill in the house. The house labor committee before its final action last week had adopted the provisions of its own bill which provided for a minimum of 35 hours per week and a 70-cent per hour maximum wage rate. However, this was finally taken out of the bill before it was reported but only after considerable talk and misunderstanding. These provisions were

not at all to the liking of the President and it was foretold at that time that the bill woul run into much trouble. However, as it now stands everyone believes the bill will go through without too much fuss.

Several amendments had been suggested to the original house bill by Representative Wood, Missouri, which were voted down by the house committee before making its report. He suggested new powers for the proposed labor board in maintaining "a minimum standard of living necessary for health, efficiency and general well being," in a series of amendments.

After the house action on this bill, it will probably go to conference to be straightened out but no such struggle is expected as seemed likely when the house bill was so much more drastic than the senate bill. Of course, both measures provide a five-man labor standards board with discretionary powers in administering the laws. At least 120 days must elapse after the passage of the board's orders before they can become effective.

VIRGINIA HAMS FIGURE IN MAIL DELIVERY PROBE

There was an aftermath last week to the refusal of the post office department to deliver mail to Republic Steel Corp. plants in Ohio during the strike. Senator Byrd of Virginia will try to collect damages for nondelivery of some hams.

According to the story of the Virginia senator, a producer of Smithfield hams at Smithfield, Va., sent some hams prepaid to Republic officials.

When the hams reached Ohio, according to Senator Byrd, "strikers by lawless acts" prevented delivery. The shipment was retuprned to Smithfield where the postmaster attempted to collect return postage. The shipper refused to pay this return postage and the hams were sold at auction at only a fraction of their value. The postmaster tried to make the shipper accept the auction price but the latter refused to accept the payment. Now, Senator Byrd says he is going to see about it.

DOLLAR MAY RULE SINO-JAP NEUTRALITY

With the present situation in the Far East being watched closely by administration officials there is renewed talk of the neutrality law and the possibility of its being invoked by the President. Those closest to the situation believe no action will be taken. Our Far Eastern trade means too much to American business.

From the standpoint of steel it is interesting to note that for the first five monhs of this year Japan took 23.3 per cent of our steel exports, exclusive of iron and steel scrap, while China took 5 per cent.

For the first five months of this year. Japan took 136,206 gross tons of pig iron from the United States and during the same period she bought 30,120 tons of ingots and blooms and 24,553 tons of other plates, not fabricated. During the same period Japan also bought 1,061,867 tons of scrap, of which iron and steel amounted to a total of 1.035,963 tons.

During the same period China bought 24,512 tons of scrap from the United States; 12,445 tons of tin plate; 7126 tons of other plates, not fabricated and 5884 tons of plain structural shapes.

INSIDE STORIES AROUSE CHIEF EXECUTIVE'S IRE

Washington was agog last week because of stories appearing in popular magazines about "Tommy" Corcoran and "Ben" Cohen, legislative writers extraordinary for the President.

The gossip was not because the methods and ways of these two right-hand men of the President were not generally known, but only scraps of this information were available here and there and no one up to this time has had the temerity to write the whole story.

There is very definite talk to the effect that so accurate was the picture of the methods used, that no one could have supplied this information but Stanley High, another Presidential right hander, who was recently let out of the upper circles in no very ceremonious way.

It is known definitely that at a luncheon last week attended by at least one of the White House secretariat, that the White House official then and there bemoaned the way in which High was let out. It was because of these stories, which are going to do the administration no good and in the end will probably mean that Messrs. Corcoran and Cohen will have to go.

It is being whispered in inside administration circles that the "Skipper" read the stories and was really provoked, a mild phrase to use under such conditions.

At any rate the stories were probably most enlightening, showing just how it is done, or reported to be done.

First Half By-Product Coke 25,695,428 Tons

Production of by-product coke for first half, 1937, as reported by the United States bureau of mines, strengthens the probability of this year setting a record in excess of the high point, which was reached in 1929.

By-product coke output in first half of this year was 25,695,428 net tons. Should last half equal this tonnage the total for the year would be 51,390,856 tons, only 2,020,970 tons below the 1929 total of 53,411,826 tons. With the steel industry faced by probability of as heavy production as during first half, and probably exceeding that level, this small difference easily would be wiped out. (See also STEEL, Aug. 2, p. 19).

The first half total of by-product coke compares with 20,621,800 tons in first half of 1936. Beehive coke production in first half this year was 1,824,400 tons, compared with 673,500 tons in the comparable period of 1936.

June production of by-product coke was 4,024,259 tons, compared with 4,478,667 tons in May. Beehive output in June was 274,300 tons, compared with 324,800 tons in May.

Follansbee Steel Corp. Plans Taking Shape

Directors of Follansbee Steel Corp., newly organized to succeed the Follansbee Bros. Co., Pittsburgh, will be selected by a special committee appointed by the reorganization committee of the old company's board.

The committee includes: F. F. Brooks, president, First National bank, Pittsburgh; George T. Ladd, president, United Engineering & Foundry Co.; John Donoho, partner of Donoho & Co., New York stock exchange members and underwriters of the new securities to be sold for cash to finance the company's modernization program; and John Follansbee, president, Follansbee Bros. Co., since 1927.

It is generally understood Mr. Follansbee will become chairman of the board of directors of the reorganized company.

Under the reorganization plan recently approved, unsecured creditors will receive 100 cents on every dollar of their claims or the equivalent in cash and securities which Donoho & Co. have agreed to purchase from them at cost when the organization is complete.

The new company will have $4,000,000 in first mortgage convertible 5 per cent bonds outstanding, 30,500 shares of 5 per cent convertible preferred stock of $100 par value and 241,379 shares of common stock.

In addition to changing the original financial structure, the company will build a 43-inch continuous hot strip mill to cost about $4,000,000 at its Toronto, O., plant. This will replace the present method of forging sheet bars, as well as a major portion of the old hand-operated sheet mills.

Editorial

Is Threat of Technological Unemployment Exaggerated?

IN "TECHNOLOGICAL Trends and National Policy" published recently by the national resources committee, C. C. Furnas, associate professor of chemical engineering, Yale university, presents an exhaustive and well-prepared chapter on the trend of technology in the field of metallurgy.

Within the compass of 38 pages he summarizes the increase in the use of iron, steel and nonferrous metals in the United States; discusses the man-hours of labor represented in the production of these metals; charts the trends of production, distribution, per capita consumption and prices; cites the most significant developments in metallurgy during the past few years; touches upon current experimental projects such as direct rolling of metals, welding by high-frequency current, etc.; scans the horizon for possible new markets, mentioning road construction, air-conditioning equipment, electrical household appliances and prefabricated houses; and concludes with a resume of present-day activity in research. The final sentence is a pungent reminder that the "great American public now spends but little more for fundamental research in all the sciences than it does for chewing gum."

Social Implications of Technological Progress Have Insufficient Background in Experience

Professor Furnas, who acknowledges assistance in the preparation of the chapter from more than a score of eminent metallurgists, research workers, etc., handles this broad subject in an able, dispassionate manner. In only one paragraph does he dwell at length upon the social implications of technological progress in metallurgy. In this connection, he writes:

> "There seems to be little doubt that one of the results of future metallurgical developments will be an increasing amount of technological unemployment among the workers directly concerned in the production of metal and the fabrication of its products. It seems doubtful if this can be remedied by increased production and consumption . . . . As plants become completely modernized, and eventually they will, there will be more men and women thrown into the lists of the unemployed. Organized labor will oppose such advances. This will delay but not stop them. This item of future technological unemployment is mentioned here merely to point out again that we as an industrial society have found no fundamental solutions for the problems raised by the replacement of men by machines. This statement is made with full knowledge of the fact that increased consumption of goods and increased use of personal services do tend to furnish employment for those displaced by machines . . . . It is useless to evade the issue by postponing the use of labor-saving methods and devices. Metallurgical industries, and all others, must look ahead to the day when machines and not men will be the principal organs of production and they must answer the question: How is the average man to make a living?"

As a statement of the long-term problem of technological unemployment in the metallurgical industries, these words by Professor Furnas probably are indisputable. No nation in the world has had sufficient experience with a population enjoying a high standard of living and served with a highly mechanized industry to know just what to expect. It is reasonable to assume, as Professor Furnas does, that in the long run the ability to produce goods with progressively fewer man-hours will impose a difficult unemployment problem.

More Employment Furnished by Highly Finished Steel Than Is Lost in Production Departments

But as for technological unemployment in the short-term future—say in the next decade or two—there is a strong probability that it will be far less of a problem than has been predicted by many authorities in recent years. The threat of technological unemployment has been over-emphasized—partly because of the prevalence of unemployment from many causes during the depression and partly because students generalize from inadequate evidence.

Numerous authorities build an impressive argument upon the department of labor's statistics on man-hours per unit of production. Professor Furnas charts these figures for pig iron, steel and nonferrous metals. They show, as they should, that a reduction in man-hours per ton of output has been occurring.

However, with less tonnage than in 1929, the steel industry actually is employing more men. Unquestionably fewer of them are in production today than in 1929. The answer is that more are in the finishing end of the business.

This fact shows up in the employment rolls of integrated steel companies. But beyond that are cases where a ton of strip steel in 1937, for instance, replacing a ton of structural shapes in 1929, affords more employment. That added employment may be in a metal stamping plant, an automobile parts plant or in an automobile assembly establishment.

Technological unemployment has become a convenient goat for many economic maladjustments. Manifestly it imposes a serious problem. But in the near future that problem will be one of readjustment to different kinds of jobs rather than that of fitting the nation's labor supply to fewer jobs.

STEEL'S INDEX OF ACTIVITY
In Iron, Steel and Metal working Industries
Based upon freight car loadings, electric power output, automobile assemblies (Cram's Reports) and steelworks operating rate (STEEL). Average for 1926 equals 100 weighted as follows: Steel rate 40, and carloadings, power output and auto assemblies each 20.
1937
1936
Per Cent
1929 1930 1931 1932 1933 1934 1935
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
Copyright 1937 STEEL

STEEL'S index of activity gained 1.3 points to 109.3 in the week ending July 31:

Week ending	1937	1936	1935	1934	1933	1932	1931	1930
July 24	108.0†	102.1	80.8	66.4	78.8	51.5	69.7	78.7
July 31	109.3*	102.5	78.4	64.6	75.9	46.1	68.9	79.2
May 29	115.6	98.6	71.9	75.7	65.3	54.2	75.7	94.9
June 5	105.1	98.8	79.3	82.3	69.9	51.0	73.5	97.9
June 12	111.4	99.4	80.0	83.6	72.1	51.1	73.2	96.2
June 19	110.3	101.0	77.3	81.8	73.9	51.8	70.9	95.0
June 26	112.8	101 9	78.4	79.4	77.0	51.6	70.6	94.0
July 3	115.3	97.5	64.1	52.3	71.4	49.2	64.1	75.0
July 10	103.8	100.9	76.5	67.8	79.1	41.7	69.4	86.9
July 17	115.7†	99.9	79.8	68.1	79.4	46.9	70.0	79.1

*Preliminary. †Revised.

Industrial Activity Tends Upward Despite Vacations

STRONG resistance to seasonal influences continues to rule in industrial activity. Except for the normal easing of automobile production during the vacation period, activity throughout the iron, steel and metalworking industries is brisk.

STEEL'S index for the week ending July 31 stood at 109.3, a gain of 1.3 points from 108 in the previous week. The increase is accounted for by a sharp upturn in freight car loadings, a 3-point rise in the rate of steelworks operations and an unchanged situation in electric power output. These factors more than offset a minor reduction in automobile output.

Railroad freight traffic—a broad indicator of short-term trends in activity—is running well ahead of the volume of a year ago. Revenue car loadings for the last week in July approached the 800,000 mark. A year ago loadings were hovering around 725,000 weekly. If the step-up in freight traffic in August, September and October, 1937, proceeds in the same ratio as in those months in 1936, loadings will break through the 900,000-car mark sometime late in September or in early October. The most recent 900,000-car week occurred in November, 1930.

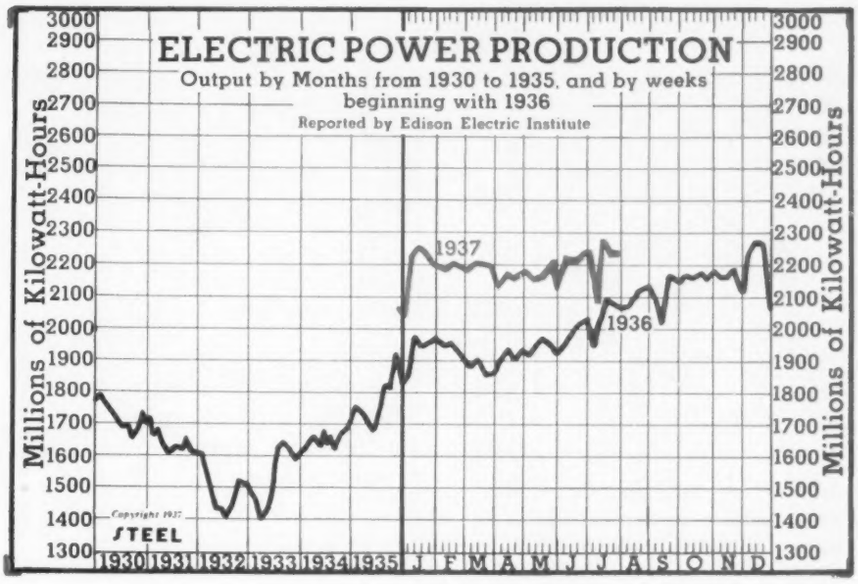
IRON AND STEEL PRICE INDEX
Composite Market of 25 Iron and Steel Products
Compiled by STEEL
Dollars Per Ton
1937
1936
Copyright 1937 STEEL
1930 1931 1932 1933 1934 1935 J F M A M J J A S O N D

	1937	1936	1935
July 31	$40.27	$33.72	$32.59
July 17	40.04	33.49	32.42
July 24	40.11	33.51	32.55
July 10	39.89	33.48	32.40
July 3	39.83	33.48	32.39
June 26	39.78	32.79	32.39
June 19	39.80	32.77	32.40
June 12	39.84	32.77	32.41
June 5	39.86	$32.81	$32.45
May 29	39.89	32.83	32.43
May 22	39.97	32.87	32.41
May 15	40.05	32.94	32.34
May 8	40.14	32.96	32.34
May 1	40.25	33.00	32.30

BUSINESS TREND

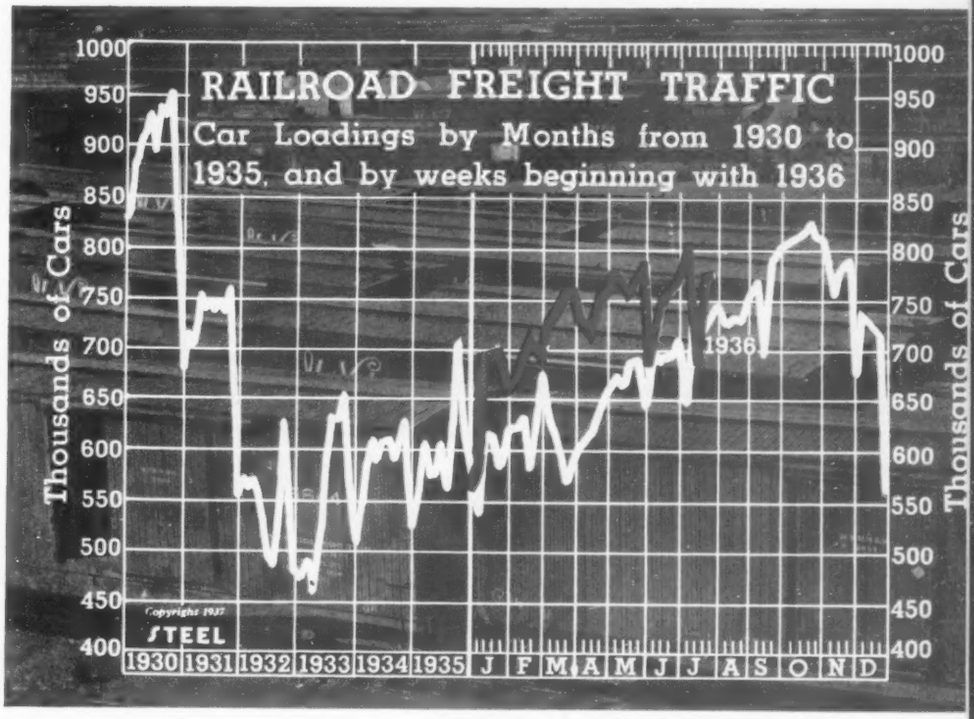
Electric Power Output Shows Slight Decline

	1937	1936	1935	1934
July 31	2256	2079	1821	1657
July 24	2258	2088	1823	1683
July 17	2298	2099	1807	1663
July 10	2096	2029	1766	1647
July 3	2238	1956	1655	1555
June 26	2238	2029	1772	1688
June 19	2213	2005	1774	1674
June 12	2214	1989	1742	1665


ELECTRIC POWER PRODUCTION
Output by Months from 1930 to 1935, and by weeks beginning with 1936
Reported by Edison Electric Institute
Millions of Kilowatt-Hours
1937
1936
STEEL
1930 1931 1932 1933 1934 1935 J F M A M J J A S O N D

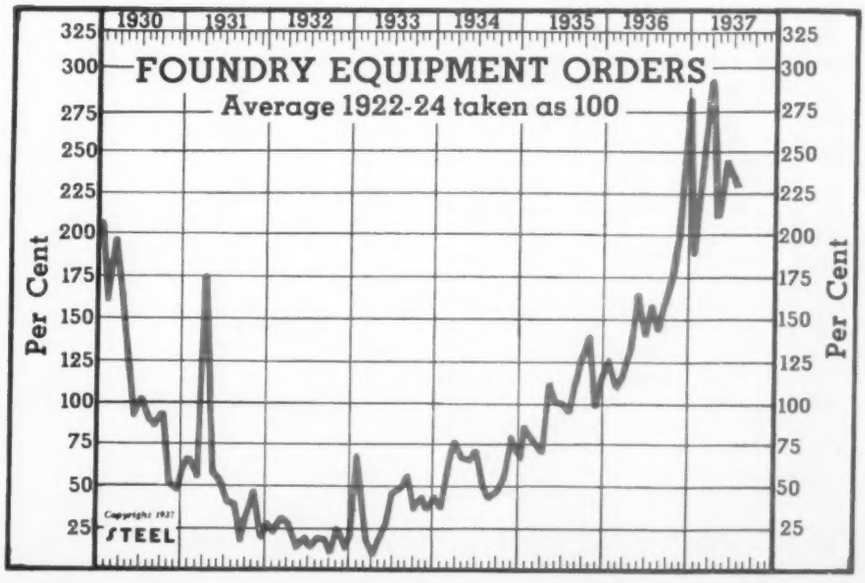
Railroad Freight Traffic Nears 800,00 Mark

	1937	1936	1935
July 24	770,980	731,062	596,462
July 17	770,075	729,402	593,366
July 10	682,205	724,324	566,488
July 3	806,168	649,759	472,421
June 26	773,733	713,639	618,036
June 19	756,289	690,716	567,847
June 12	754,360	686,812	653,092
June 5	692,140	695,845	630,836
May 29	794,855	646,859	565,342
May 22	779,276	683,406	599,543


RAILROAD FREIGHT TRAFFIC
Car Loadings by Months from 1930 to 1935, and by weeks beginning with 1936
Thousands of Cars
1936
STEEL
1930 1931 1932 1933 1934 1935 J F M A M J J A S O N D

Foundry Equipment Orders Decline Sharply in June

	Per Cent			
	1937	1936	1935	1934
Jan.	190.9	127.0	76.6	37.2
Feb.	249.5	110.4	75.7	65.8
March	294.2	115.0	69.4	75.4
April.....	208.3	134.0	113.2	67.9
May	242.0	165.4	100.7	66.5
June	228.2	141.4	100.2	70.4
July.....	.....	159.6	94.0	50.7
Aug.....	.....	144.8	113.0	43.1
Sept.....	.....	161.0	128.5	46.4
Oct.....	.....	173.8	140.0	55.3
Nov.....	.....	200.4	100.4	80.4
Dec.....	.....	283.3	118.1	66.9



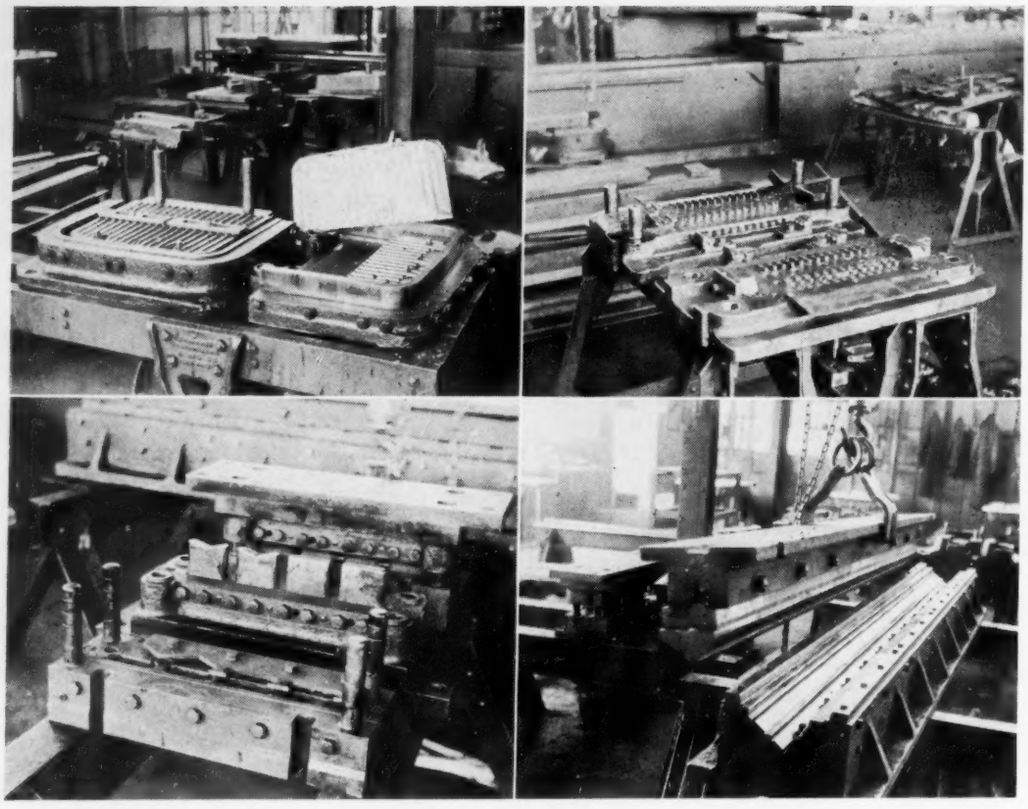


FIG. 1 (upper left) — Combination die for making end caps for tile floor forms. Fig. 2 (upper right) — Die for slitting herringbone lath. Fig. 3 (lower left)—Pillar punch and die for punching holes in curb bars. Fig. 4 (lower right)—Heavy die for forming steel lintels which is built in four sections, total length being eight feet

Economical Die Maintenance Is

BY FRED B. JACOBS

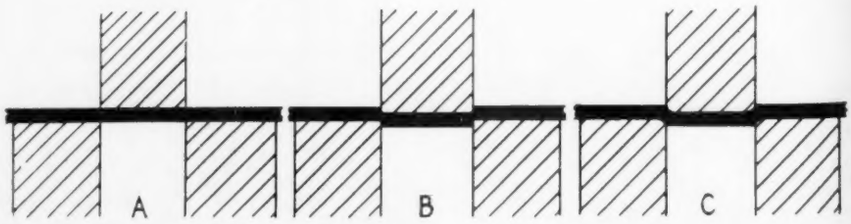
STEEL lath, sash, doors, joists roofing and standard steel buildings are among the products turned out daily at the Truscon Steel Co., Youngstown, O. Quantity production of die stampings like these necessarily infers a large and important problem in die maintenance. A modern single story building covering 20,000 feet of floor space is devoted to the die maintenance department, well equipped with surface grinders of the latest type.

Grinding is done on several types of modern machines so the most efficient type for a specific operation is available. A majority of dies used are of the sectional type, which facilitates their construction and affords ready repairs in case a die section breaks. It is a much more simple procedure to make a small section of a die than an entire unit. Some of the dies are of the plain blanking variety while others are compound units. In practically every case the pillar form of construction is followed, as this assures alignment of the upper and lower members at all times. A few dies are made of high speed steel, but the majority are high carbon tool steel. The material fabricated by the dies varies from 1/16 to ⅜-inch in thickness.

Illustrations of a few types of dies used are of interest. The unit shown in Fig. 1 is a combination blanking and forming die for making end caps for floor tile forms. A finished stamping is shown at the back of the upper die section at the right. As the illustration shows, this is a pillar die. The downward stroke of the upper member blanks the stock and then forces it into the forming dies. This particular die is made in sections and its approximate dimensions are 22 x 27½ inches.

In Fig. 2 is illustrated a somewhat complicated die for slitting herringbone lath. This unit is 18 x 26 inches, made in sections and is supplied with four pillars to assure alignment. In Fig. 3 is shown a pillar punch and die for punching holes in curb bars. This die is 7 x 26 inches. The forming die illustrated in Fig. 4 is made in four sections and is eight feet long and one foot wide. It is for forming steel lintels and is an excellent ex-

FIG. 5—Diagram showing graphically the result of a dull die at C, as opposed to action of a sharp die at A and B



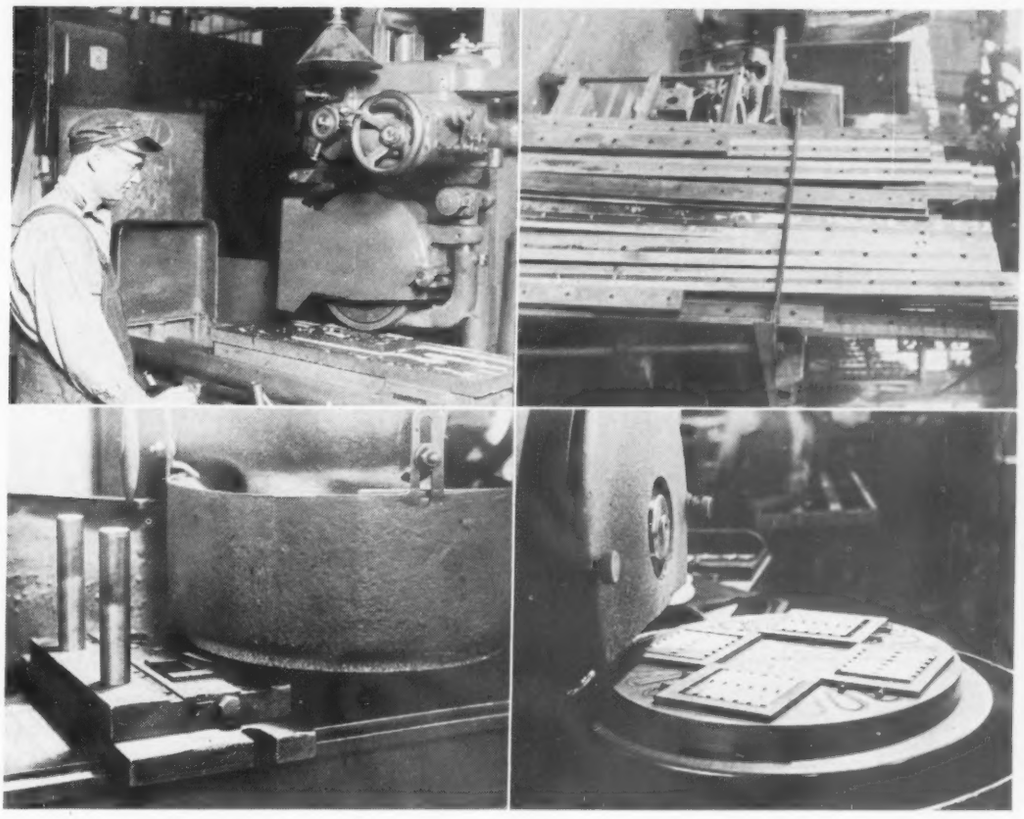


FIG. 6 (upper left) — Wet grinder used on die surfaces where there are no projections to interfere with the wheel. Fig. 7 (upper right) —Knives are often ground several at a time. Fig. 8 (lower left)—Vertical spindle surface grinder. Fig. 9 (lower right)—Twenty-four parts are ground simultaneously on this rotary surface grinder

Assured by Modern Machines

ample of heavy forming die construction.

As stated, practically all the dies used at this plant are of the pillar type so that injuries or undue wear caused by misalignment, either through carelessness in setting the dies in place or through undue wear of the press slides, are eliminated. The number of stampings a given die should turn out between sharpenings depends principally on the thickness of the stock. Practically all the material fabricated is mild steel which, comparatively speaking, is not hard on the dies. Through long experience an expert press operator can tell readily when dies need resharpening. He inspects the stampings as they come from the press; too, he can tell instantly by the sound of the operation if the dies are working properly.

It does not need any argument to convince the average engineer that dies should be sharp at all times. While he knows what happens when the punches and dies come together, a graphic illustration of what actually takes place will aid in depicting the result of using dull tools. In the diagram shown in Fig. 5, the back portions represent the stock while the cross hatched sections are the punches and dies. In section *A* the punch has just come in contact with the stock. With a sharp punch and die, the punch descends to shear the stock cleanly with sharp edges as shown at *B* where the punch has descended half the thickness of the stock. At *C* is shown the action when the punch and die cutting edges are dull. This illustration is greatly exaggerated to illustrate the principle. The cutting edges have been worn round through constant use and thus they tend to form fillets as the stock is sheared. Fillets represent a strong form of construction and the undue strain set up in attempting to punch the stock under these conditions may have one of

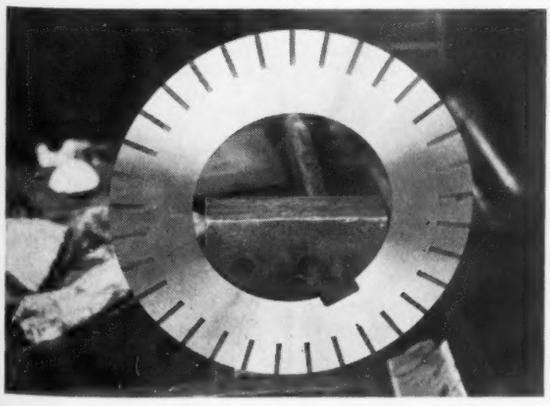
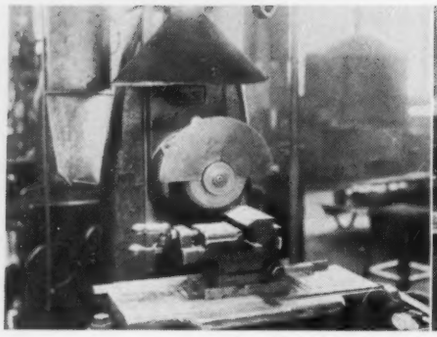


FIG. 10 — A diamond lath cutter, built of alloy steel, which must be finished with great accuracy



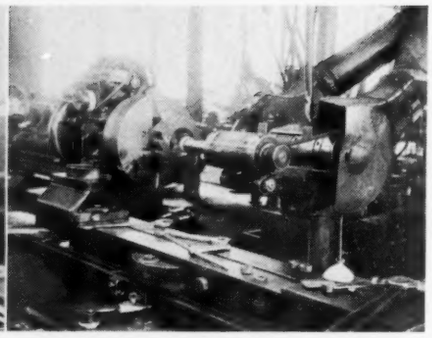


FIG. 11 (left)—Surface grinder designed for finishing two slots in the angular surface of a die punch section. Fig. 12 (right)—Hardened steel stock feed ratchet set up for grinding tapered holes

two results. It may spring the press crankshaft or break the punch and die, or it may do both. If punches and dies are to operate under ideal conditions, they must be kept sharp at all times to reduce the shearing strains to a minimum.

It is considered the better practice to grind dies frequently, removing only a few thousandths of an inch at each grind, than to wait until the dies are unduly dull, necessitating the removal of anywhere from 0.010 to 0.030-inch to renew the cutting edges to the required sharpness.

The type of machine to use in a given die grinding operation depends on the nature of the work. The surface grinder shown in Fig. 6, built by the Mattison Machine Works, Rockford, Ill., is fitted with a manufactured alundum alumina wheel, supplied by the Norton Co., Worcester, Mass. It is 16 inches in diameter, has 3 inch face, is of 3846 grit, H grade. It runs at a spindle speed of 1150 revolutions per minute imparting a surface speed of approximately 6200 feet per minute. The cross feed to the wheel has a maximum travel of 1½ inches for each work reversal so that the full advantage of a wide face wheel can be had. The table feed is hydraulically operated with speeds of 30, 45, 60 and 90 feet per minute. The work is located on a magnetic chuck, with a working surface of 12½ x 36½ inches, furnished by Taft-Peirce Mfg. Co., Woonsocket, R. I.

This machine is used for a wide variety of die grinding operations on any surface where there are no projections to interfere with the wheel. In this case the work consists of two cutoff die sections 16 inches long and 4 inches wide, both being located at one setting. This is a wet grinding operation and under these conditions the wheel can be forced to maximum capacity without danger of burning the work.

This machine also is used for sharpening the knives shown in Fig. 7. These knives are for cutting plate stock and are 3¾ to 4¾ inches wide, ½ inch thick and have various lengths up to 6 feet. They are carbon steel. They are reconditioned rapidly on the machine and often several are located on the chuck for simultanous grinding.

In Fig. 8 is shown a die in position on a vertical spindle surface grinder furnished by Pratt & Whitney division, Niles-Bemont-Pond Co., Hartford, Conn. This machine is fitted with 3830 grit, H grade, silicate bond, alundum, 14 x 14½-inch, cylinder wheel. The wheel is run at a surface speed of 5000 feet per minute which is amply fast for a wheel of this kind. The work is located directly on the magnetic chuck which has a working surface of 34½ x 11 inches. In this illustration the water guard has been removed. This is a wet grinding operation, coolant being supplied inside the wheel. Such wheels are soft and porous and for this reason are given an inside coating of sulphur or paraffin to prevent them from being loaded with coolant. Without this precaution the wheel might become unduly heavy and fracture might result.

Multiple Grinding

The die shown is of the pillar type. In this setup it can be ground satisfactorily without removing the pillars, since the wheel can cover the surface to be finished before the pillars come in contact with the guard.

In the operation shown in Fig. 9 the machine is a rotary table surface grinder, made by Heald Machine Co., Worcester, Mass., and fitted with an Alundum wheel, 12 inches in diameter, with 1 inch face and of 3846 grit, H grade. This wheel is operated at a surface speed of 5000 feet per minute and the grinding is done wet. In the illustration the water guards have been removed. Twenty-four die parts are nested in each of the four holders shown. In this position both sides are ground accurately to bring the parts to the required thickness. The work is located directly on the magnetic chuck. Multiple grinding of this kind is productive of economical results.

These machines are used for a diversity of other operations. For example, the diamond lath cutter shown in Fig. 10 is typical. This cutter is of alloy steel, 9 inches in diameter, 0.062-inch thick and must be finished with great accuracy. On the opposite side is another series of depressions staggered with the ones shown. Grinding of these parts is performed by locating them directly on the magnetic chuck.

The machine shown in Fig. 11 is a No. 2 surface grinder, furnished by Brown & Sharpe Mfg. Co., Providence, R. I. and fitted with a magnetic chuck. In this operation an angular die punch section is located in the vise and the grinding operation calls for finishing two slots in each angular surface. This wheel is 6 inches diameter with the sides trued down so it will enter the ⅜-inch slot in process of grinding. It is 3846 grit, G grade, and is operated at a surface speed of 4000 feet per minute, the grinding operation being done dry. Machines of this type are used for a diversity of grinding operations, especially on small and intricate work.

A surface grinder, supplied by Blanchard Machine Co., Cambridge, Mass., also is employed for a number of surfacing operations, generally on cast iron die and punch holders. As such a machine carries an 18-inch cylinder wheel and a 30-inch rotary magnetic chuck, it can be utilized for a large number of surfacing operations wherein accurate results are obtained economically.

In Fig. 12 is shown a hardened steel stock feed ratchet set up for grinding the tapered hole which is 3 inches in diameter and 3 inches deep. Finishing this bore by grinding assures a good fit in assembly. This is a No. 5 universal grinder built by Gallmeyer & Livingston Co., Grand Rapids, Mich., and fitted with an Alundum wheel, 1½ inches in diameter with ½-inch face and of 3836 grit, J grade. This machine is used on both external and internal cylindrical operations.

Precision grinding is relied on to a great extent in keeping dies in the proper working condition. Modern equipment, including up-to-date grinding wheels keep maintenance costs on dies from becoming prohibitive.

Builds New Coping Machine

Gray Foundry Inc., Poultney, Vt., has developed a new hydraulic feed coping machine for use by flagging and tile manufacturers in recutting and resizing flat stone such as marble, slate and soapstone. Of high capacity, the machine is self contained, direct driven and has 1-point control for the operator through throttle on the front, the motor being controlled from pushbutton station handy to the operator.

Copper Alloy Tubes Are Made by Piercing and Extrusion Process

ACCOMPANYING drawings illustrate the method by which the American Brass Co., Waterbury, Conn., now is manufacturing condenser tubes from copper alloys. Previously it was necessary to cast most of the tube alloys with the hole already in place. In the new process tubes are made by piercing and extruding solid cast billets which have been machined to remove surface irregularities. The new process assures clean surfaces, inside and out, free from foreign matter or other defects of a similar nature.

A heated billet is placed in a cylindrical container in the extruding machine and a hole pierced longitudinally through its center by a hydraulically actuated piercing tool. The small amount of metal displaced is thrown out of the way by the tool. After piercing the billet, the tool projects through the center of the die which forms the bottom of the container; the tool thus determines the inside diameter of the tube. In the same operation a piston, of which the tool is an integral part, presses upon the billet, forcing the hot, plastic metal through the die and around the tool to form a heavy walled tube. This tube then is ready for the rolling operation.

Tube Is Cold Swaged

The rolling is an interesting new process in which the extruded tube is cold swaged over a mandrel so that it is thoroughly worked by cumulative rollings. It is then annealed and drawn in the same manner as any ordinary condenser tube. However, fewer drawing and annealing operations are required, thereby minimizing the possibility of structural or mechanical defects. This new method of production, when used in conjunction with a low temperature electric finishing anneal, insures a fine, uniform, grain structure throughout the walls of the tube.

The new method enables the company to produce fine condenser tubes from newer, special alloys. These alloys include Super-Nickel, containing approximately 70 per cent copper and 30 nickel; Ambrac, nominally 75 per cent copper, 20 nickel and 5 zinc and Ambraloy, nominally 76 per cent copper, 22 zinc and 2 aluminum. Standard admiralty tubes also are produced by this method.

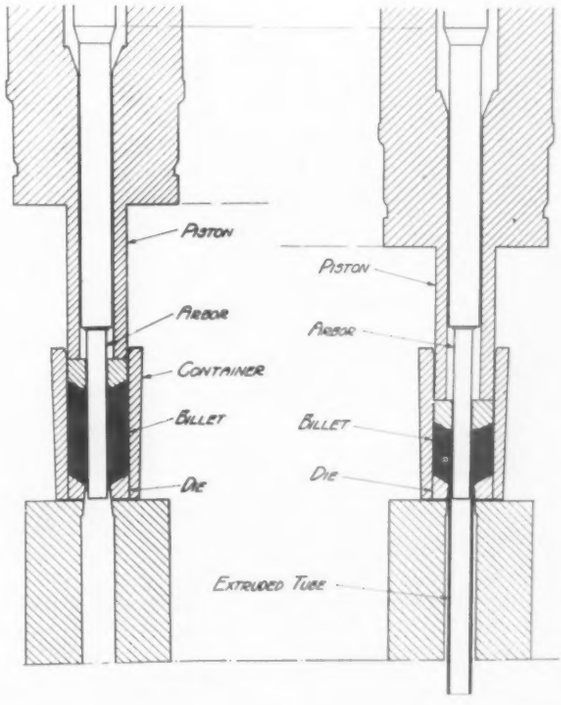
Another new development, according to R. S. Baker, service engineer, American Brass Co., is a new channel type bus made up of copper channels up to widths of 9 inches. Two copper channels arranged to form a hollow square tube with longitudinal ventilating slots vertically above one another offer several advantages. The square tube has greater rigidity than a round tube, permitting long spans between bus supports. It permits of good current distribution at normal power frequencies with low power losses. It gives large surface areas for dissipating heat, has flat surfaces for tap-off connections and permits of a compact and simple arrangement with minimum installation expense. Such bus channels, with sheet copper housing, were used for the Boulder dam power plant, the fabrication having been done by the I. T. E. Circuit Breaker Co.

Another American Brass Co. development is the introduction of Everdur electrical conduit in rigid conduit and E. M. T. sizes for use where corrosion resistance is essential. The use of a tapered thread on both the rigid conduit and fittings makes this product suitable where explosion proof installations must be made.

Perfections of a patented process of electro-deposition has enabled the company to produce wide, thin copper sheets in long lengths. This development work, done by the technical staff of the Anaconda Copper Mining Co., has made available sheets ranging from one to seven ounces per square foot in weight, in widths up to 30 inches measuring up to 30 inches wide and of unlimited length. In addition to use in the building industry, the new wide, thin copper sheets in long lengths have found many industrial applications.

Stainless Steels Cut Toll From Sulphite Corrosion

Toll of sulphite corrosion in requiring repeated replacement of paper mill equipment long has been recognized as being extremely high. Corrosion of materials formerly used for sulphite pulp cooking equipment was estimated in 1930 by the corrosion committee of the pulp and paper industry to account for a maintenance expense of about $100 per year per ton of daily production, an average of $10,000 per year for all the sulphite mills in the United States and Canada. This maintenance expense may be reduced greatly by the use of stainless steels. The possibilities are summarized in an article by F. L. La Que, entitled "Corrosion Resistant Steels in Sulphite Piping," which appeared in a recent issue of *Paper Mill and Wood Pulp News* this contains useful information on compositions and mechanical properties of cast and wrought stainless steels. Reprints of the article may be obtained from International Nickel Co., 67 Wall street, New York.

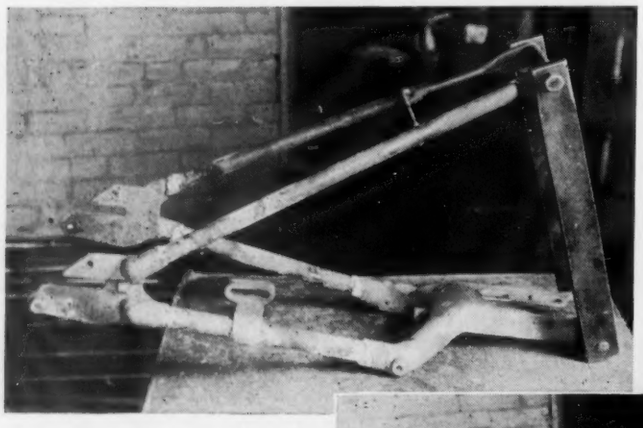


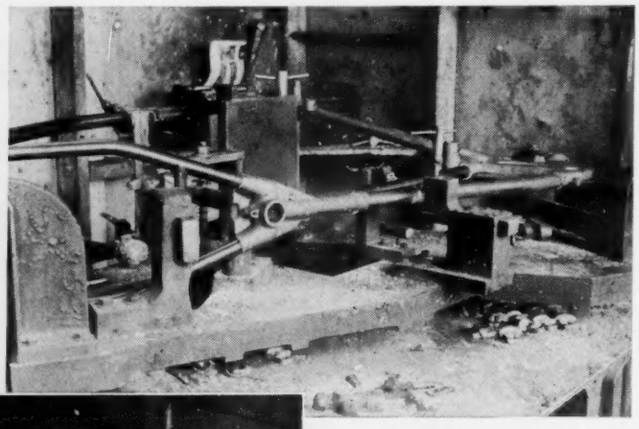
These drawings illustrate the principle of tube extrusion. At left is shown billet in container with arbor extending through die. This arbor determines inside diameter of tube. At right, piston is pressing upon billet, forcing metal through die and around arbor

Special Fixtures Are Required for Obtaining Accurate Alignment in Motorcycle Frames

DUE to abuse to which it is subjected in service and the load which it must carry a motorcycle frame must be constructed with great care. Such a unit is built of steel tubing of heavy gage, welded into drop forged steel or cast malleable connections. Welds must be sound, parts must be in accurate alignment for welding and any misalignment occurring during the fabrication process must be corrected subsequently. This matter is of great importance. A cycle in correct alignment, for example, may be driven over a smooth road in a straight line without exertion of side pressure on the handlebars.

Accompanying illustrations show some of the features of the technique followed by the Indian Motorcycle Co., Springfield, Mass., in the production of cycle frames. These show typical methods of positioning parts to be welded and the means employed for subsequent correction of alignment. The company employs electric, atomic hydrogen and gas welding, depending on the job. Some frames require more than 25 welds.





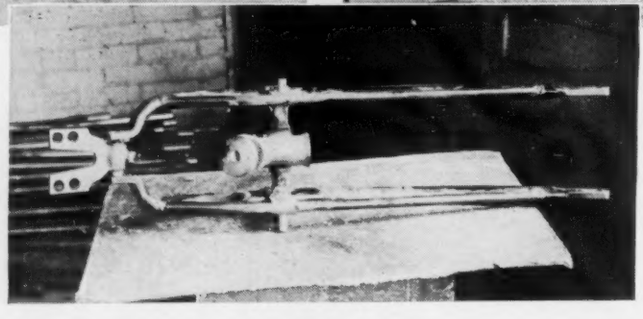


Fig. 1 (top left) affords a good illustration of the use of ties or straps for positioning parts; this view shows a rear section assembly of a sport model cycle ready for welding. Fig. 2 (bottom) shows a front fork for a junior model cycle welded by the atomic hydrogen process. Fig. 3 (top right) shows a welding fixture for correctly locating the head, seat post, tube forks and frame of a police model cycle. In this job the parts are tack welded and then removed from the fixture for completion of the welds

From Iceland to the Sahara

IN A STEEL MILL

This steel company needed a bearing lubricant that would work at *any* temperature!

The lubricants being used on the bearings of their table rolls couldn't take the extreme variations in temperature met in a well-known Pittsburgh steel mill. Sub-zero one day—burning heat the next! Mounting maintenance costs and slowed production were inevitable!*

Shell was called in! After a complete survey, a Shell Steel Mill Lubricant, developed by Shell engineers and scientists to maintain a proper lubricating film under all extremes of temperature, was put on the roller bearings.

After three years of Shell lubrication, under these severe operating conditions, this steel company's maintenance men report gratifying results from the use of Shell Lubricants. Today they insist on Shell Lubricants for all exposed bearings in their plant!

As in this particular steel mill—so in thousands of American mills and factories—Shell is solving the tough problems of industrial lubrication. The reason—an "Invisible Element," not measurable in gallons: A combination of fine crudes, modern refineries and wide-awake sales and engineering staffs who know *your* problems through years of experience on the "firing lines" of American industry. This *plus* in lubrication is yours for the asking. Simply phone or write your nearest Shell office.

*An actual case history from Shell's files

SHELL *STEEL MILL* LUBRICANTS

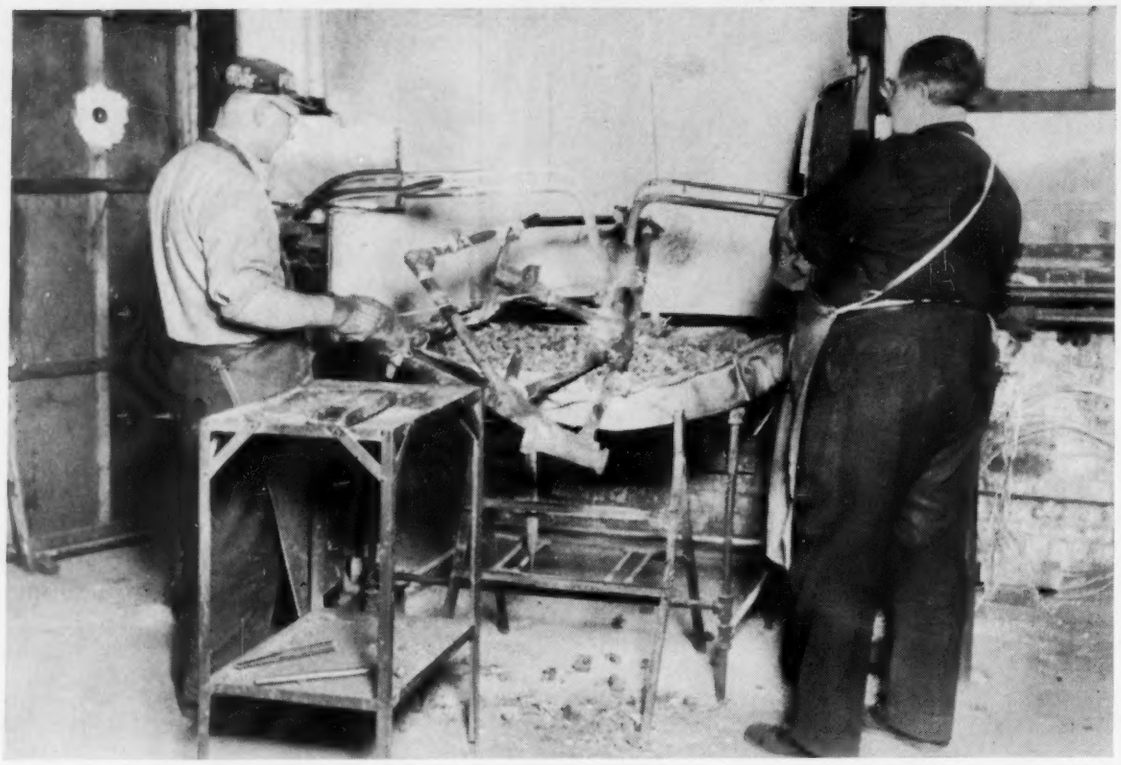
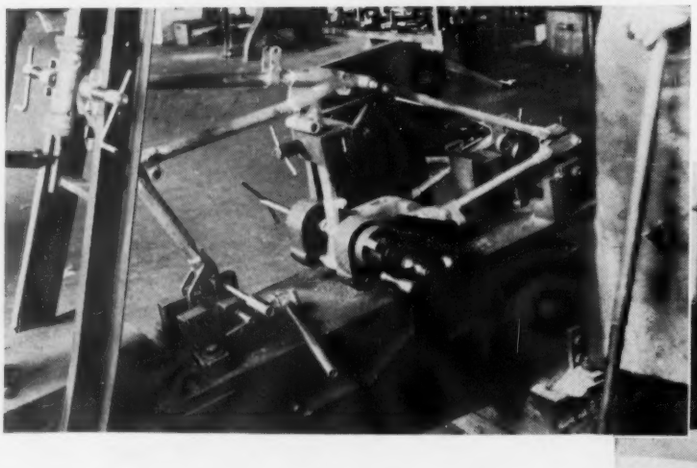


Fig. 4 (above) shows an operation in which a frame is held over a charcoal bed in a forge while two gas torches are suspended from convenient hooks. The weld is made with bronze wire. Fig. 5 (at left) shows a fixture for aligning frames after welding. Parts out of alignment are returned to correct position by hand levers



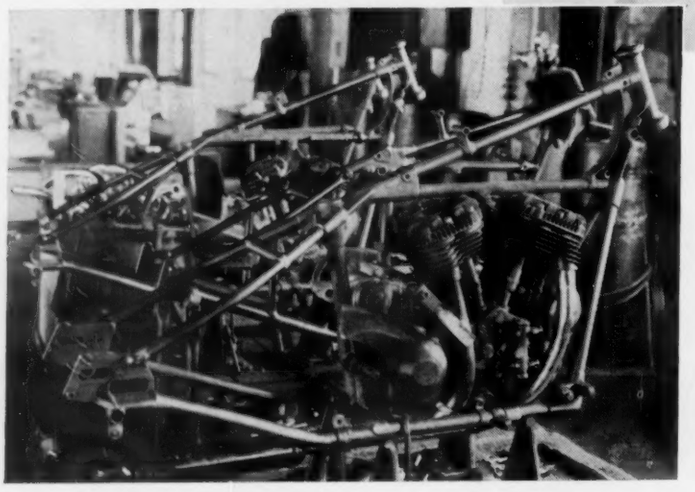


Fig. 6 (above), of a finished frame ready for enameling, affords an excellent idea of the complicated construction and corresponding chances for misalignment. Fig. 7 (at left) shows incomplete motorcycle frames for different models. In one of these, for example, are placed parts for an exhaust pipe and muffler assembly in the position they will occupy in a finished machine; the joints are closed by oxyacetylene welding. This method permits of welding and subsequent corrections so the parts will be in alignment before reaching the final assembly line

ADVERTISING PAGES REMOVED

MATERIALS HANDLING

Conveyors and Tiering Machines Aid Warehousing in Large Stove Plant

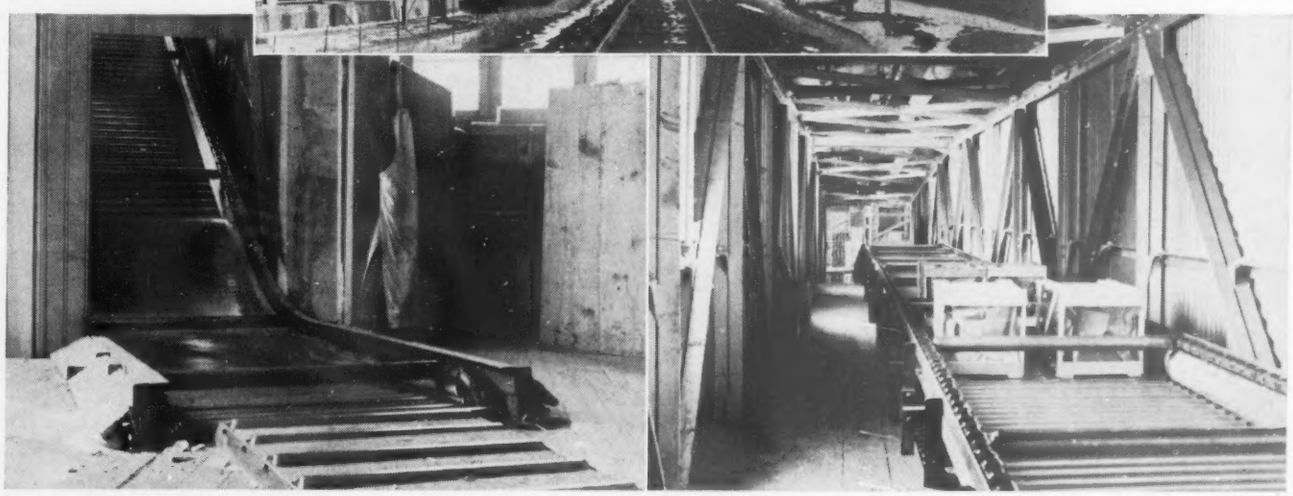
DURING the past few years, one of the busiest plants in Gardner, Mass., has been the Florence Stove Co., manufacturer of oil stoves and ranges, oil burning heaters and gas ranges. At present, activities there indicate that demand for the company's products continues. For instance, construction work is well underway on a new building, which will house a new enameling department with the most modern equipment, including continuous furnaces.

Other portions of a plant expansion program have been completed already. Probably the most important unit from a materials handling standpoint is a large new warehouse, completely conveyorized and having a capacity for storing upwards of 300 carloads of finished and crated products.

When a plant receives for use an average of a carload and a half of steel each working day, and ships three or four carloads of finished products, in addition to numerous motor truck shipments, it is to be expected that materials handling would play an important part in its production departments. Consequently, for several years a wide variety of mechanical equipment has been utilized in and between various departments throughout the

FIG. 1 (right)—A covered bridge over a railroad track connects the stove company's packing department at left with the warehouse at right. Fig. 2 (below)—Lower end of conveyor which crosses the bridge

FIG. 3 (below)—A view of the push-bar conveyor as it moves over bridge toward the warehouse. Crated stoves, heaters and ranges transported into the warehouse by the conveyor are stored awaiting shipment



MATERIALS HANDLING

plant. Most of the methods in use for handling are conventional ones, a good blending of lift trucks, floor trucks, conveyors and other classes of aids to a smooth flow of raw materials, parts and finished products.

With the introduction of a broad line of oil burning heaters a few years ago, new demands arose which overcrowded the existing storage facilities at Gardner. As a result, it became evident to the management that if prompt and speedy distribution of its products were to continue, and improved service to the trade provided, a new warehouse would have to be added.

Warehouse Site Selected

Already, the plant consisted of 25 buildings of concrete and brick construction, covering a large acreage. To be efficient, a warehouse building of the type required must be located strategically as close as possible to the packing department. In this case, existing buildings were located on both sides of the packing department and alongside one of the railroad switchtracks serving the plant.

Fortunately, however, there was an available building site directly opposite the building in which packing operations are performed. At first, this location seemed illogical because of the railroad tracks, but the solution was the use of an overhead bridge connecting the packing department and the warehouse, and the installation of a specially designed system for transporting crated goods into storage and out again for shipment.

Built of brick, concrete and steel, the warehouse is a two-story structure 300 feet long and 150 feet wide. Ceilings are 19 feet high. The total floor space of 90,000 square feet is laid out in bays approximately 20 x 30 feet. The entire building is fully equipped with automatic sprinklers. Many windows provide adequate light during the daytime, and the electric light outlets reach every bay.

Designed to handle wooden crates with a maximum size of 4 feet 6 inches long, 2 feet 8 inches wide and 3 feet high, with weights of 317 pounds, the roller conveyor system, along with some electrically-operated tiering machines, provides the central means of handling in what is proving an efficient warehouse operation.

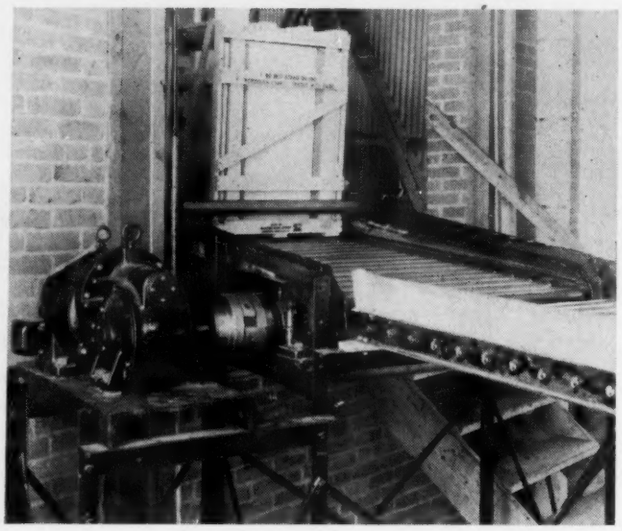


FIG. 4 — The push-bar conveyor is powered by a 5-horsepower motor which is installed at the warehouse terminus. A large crate is shown entering the warehouse on the conveyor

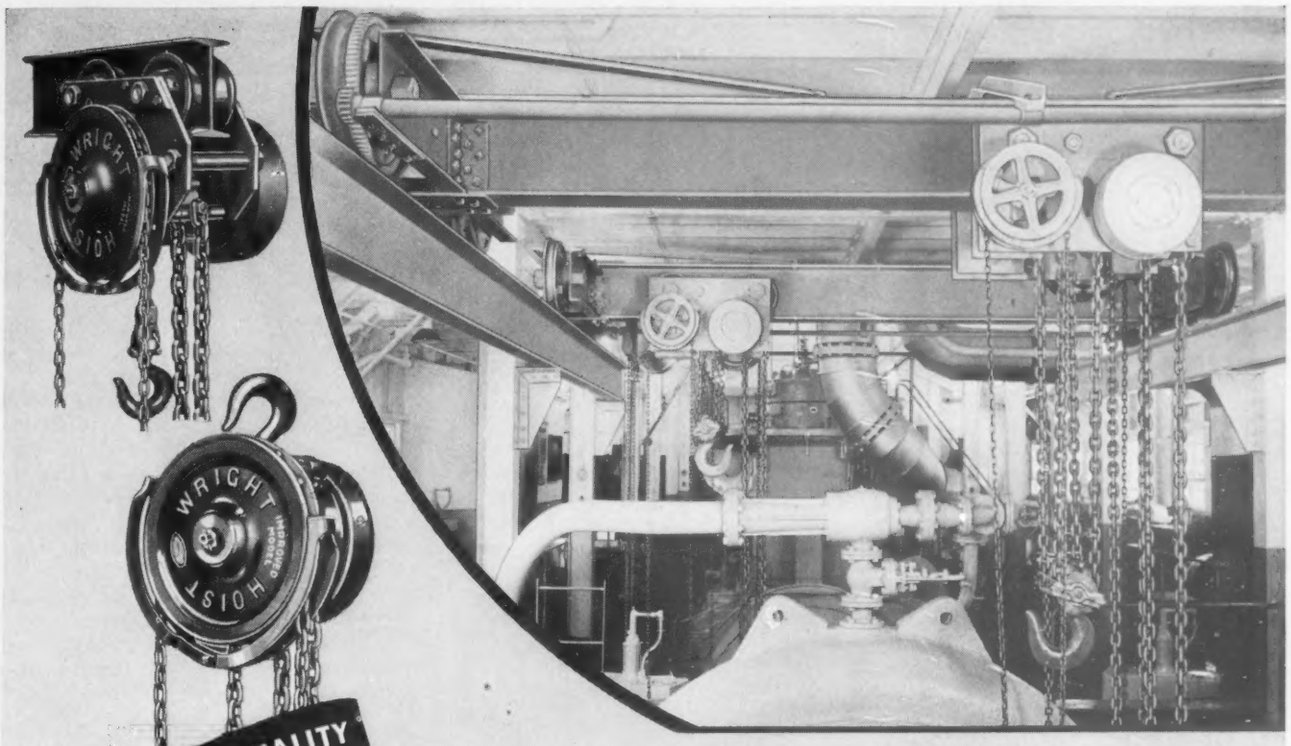
Starting with a push-bar type conveyor at the level of the second floor of the packing department, the system transports the crates over the bridge and onto the second floor of the warehouse, and from that point distributes them to points on both floors.

How System Operates

How the warehouse handling system operates is explained best by the accompanying illustrations. Fig. 1 is an exterior view of the covered bridge which connects the second floor of the packing department, at the left, with the corresponding floor of the warehouse building, at the right. It is across this bridge that the first push-bar elevating conveyor does its work. The bottoms or carrying surfaces of the crates, in which stoves, heaters and ranges are packed, have longitudinal strips suitable for supporting the crates on roller conveyors, and the ends have cleats not more than ¾-inch thick.

Fig. 2 is a view of the lower end

FIG. 5—Manually-operated diverter by which crates are made to pass over the roller conveyor or onto a push-bar conveyor for discharge on the lower floor of the warehouse



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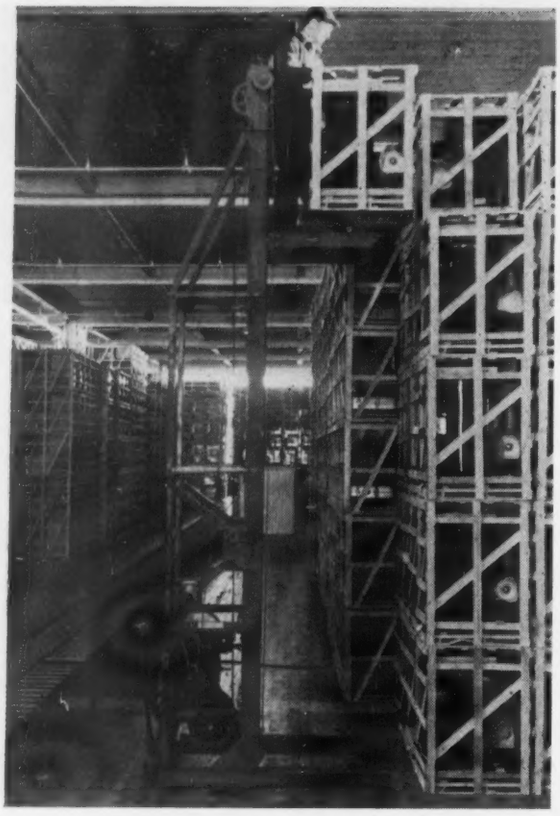

FIG. 6 — Electrically-operated tiering machines, such as shown here, are used for stacking and unstacking crates. By this method of storing, maximum cubic content of the warehouse is utilized to good advantage

of the push-bar elevating conveyor in the packing department. This is a 2-strand chain conveyor with a heavy steel bar connecting the two strands. The chains are power driven and are reversible so that on downward journeys, the push-bars hold back the crates, and in connection with the motor, act as brakes for descending loads

Room for two crates of some of the smaller sizes is provided on the conveyor as is shown in Fig. 3, which is a view looking across the bridge and towards the warehouse terminus of the push-bar conveyor. When larger sized ranges and heaters are handled, they are conveyed singly as may be seen in Fig. 4.

Conveyors Distribute Crates

This push-bar elevating conveyor is driven by a 5-horsepower motor as shown also in Fig. 4, a view taken at the warehouse end of the bridge. Assembly lines with tapered connections between main and lateral lines join the push-bar type conveyors in serving every part of the two floors of the warehouse.

A manually-operated diverter, shown in Fig. 5, closes one or the other line, permitting crates to move along to a roller line paralleling a push-bar conveyor, or permitting crates to pass on to the push bar line and be discharged on the lower floor of the warehouse.

Crated heaters may vary in weight up to 300 pounds. The large ones are stacked six high in the warehouse. For this stacking, three electric machines are employed. One of these is shown in Fig. 6. It is a tiering unit which receives filled crates from the roller conveyor and places them on the pile. The platform of the tierer is equipped with roller conveyor, which makes it easier for the operator to move crates on or off the platform. The machine is portable. When the operator wishes to move it, he simply pulls on the handle, which raises the machine off the floor so that the weight is carried by the two floor wheels mounted directly on the handle. The latter also pivots so the operator can steer the unit.

When crated products are to be shipped, the tiering machine is utilized once more, this time to take the crates from the piles and deposit them on the conveyor line nearest to that particular point of storage. Thence, the crates move forward on one of the longitudinal lines, or, if on the upper floor, to the deflector which is moved over to permit them to go onto the push-bar conveyor and thence to the shipping floor.

Ramp Loads Freight Cars

Because the switch-tracks in the rear of the warehouse are not depressed, there is a difference of several feet between the floor of the latter and the covered loading platform, which runs the entire length of the building, permitting loading of four freight cars at a time. To offset this difference, and permit trucking of crates, as well as of other containers, a ramp has been constructed, in the center of which has been installed a single strand reversible chain equipped with dogs. The latter engage the underframe of the floor truck, as shown in Fig. 7, and pull the truck on its upward

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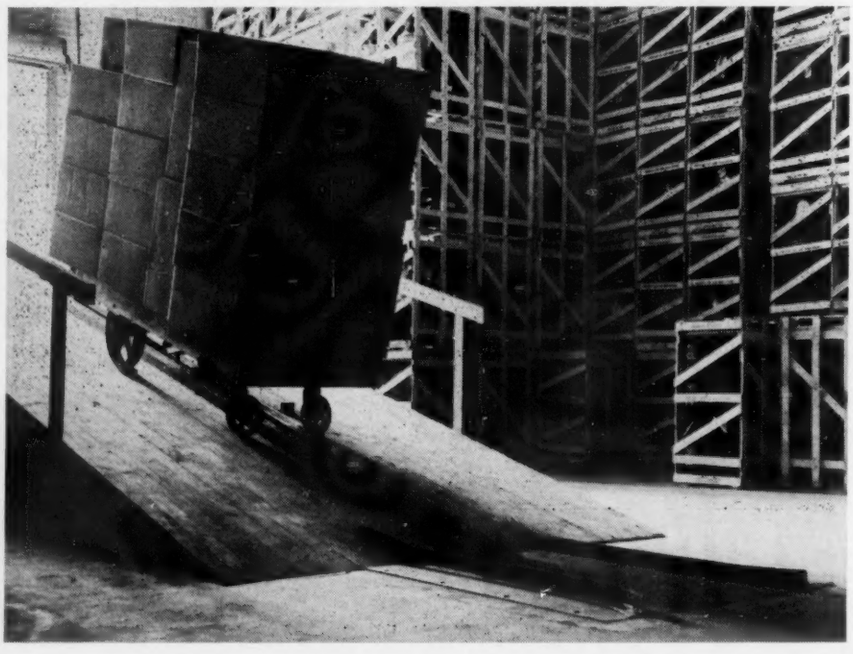

FIG. 7—A ramp provided with a single-strand reversible chain facilitates movement of floor trucks up to the shipping platform and down again. Dogs on the chain engage the underframe of the trucks, these serving to elevate the trucks on ascent and to brake them on the descent. All illustrations courtesy Standard Conveyor Co.

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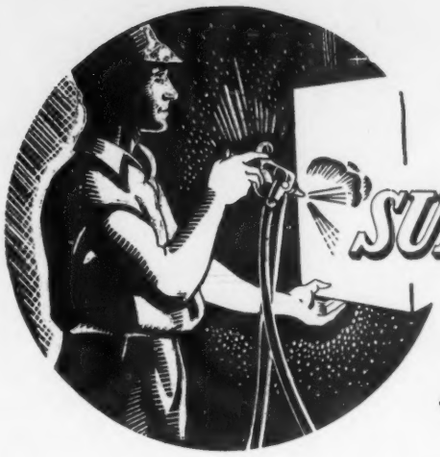
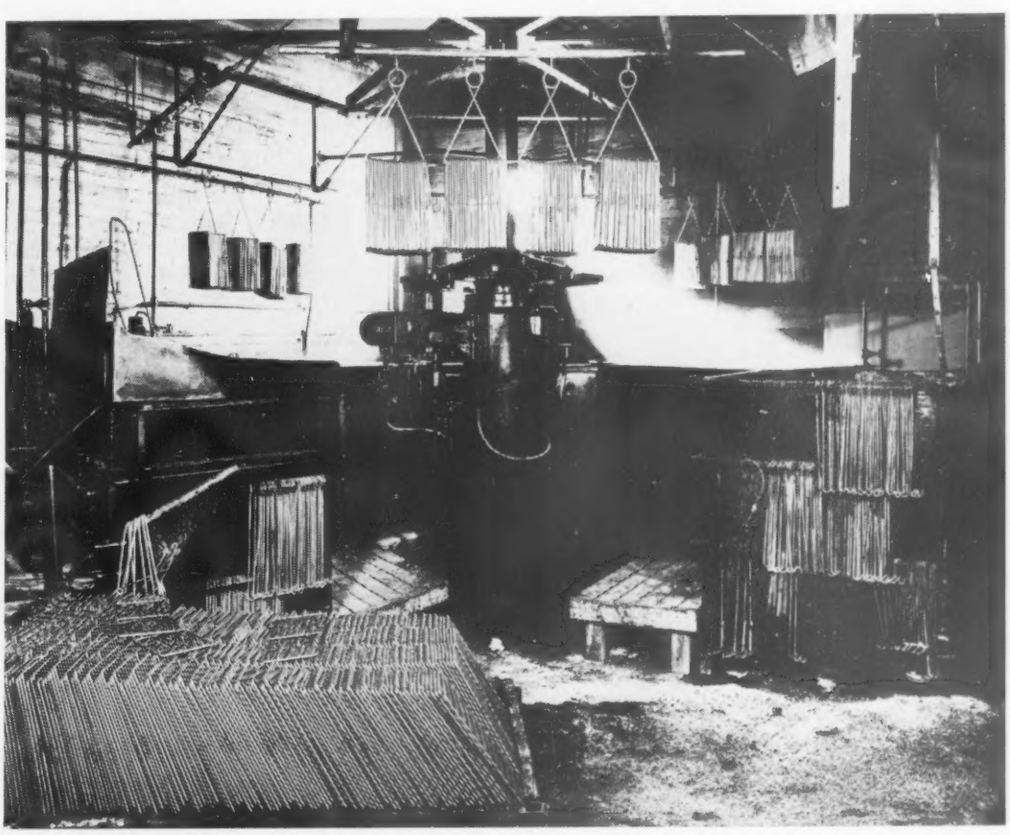


SURFACE TREATMENT AND FINISHING OF METALS

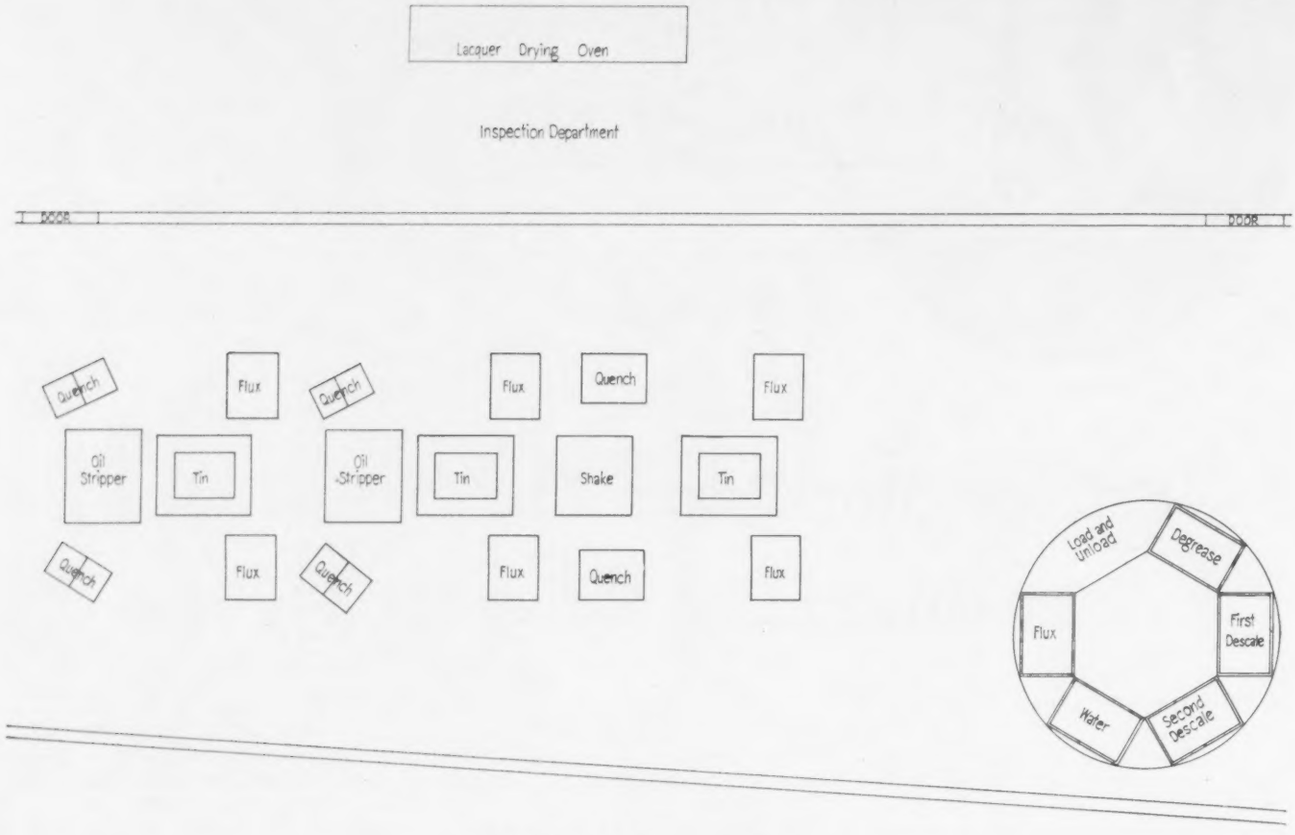
Refrigerator Parts Are Hot Tinned In Unusually Compact Plant

HOT tinning is a commonly used finishing process adaptable to a wide range of metal products. Among the better known parts so finished or assembled are automobile radiator cores, steel kitchenware, refrigerator condensing units, shelves and miscellaneous formed wire articles such as guards for electric lights, wire baskets, cream separator parts, common tin cans and the like.

Actually nothing more than a variation of the common soldering process, there are nevertheless many phases of hot tinning by dipping which require special care and attention for a quality job. For example, consider the methods used for hot tinning refrigerator shelves and other formed steel wire products at the L. A. Young Spring & Wire Corp., Detroit. Arrangement of equipment for cleaning, fluxing, tinning, stripping and quenching—five essential steps in the process—is unique in that it is unusually



FIVE - STATION cleaning machine with rotating arms in the up position. Loading and unloading is done in the foreground. The five tanks, from left to right, are: Degreaser, first pickle, second pickle, hot water wash and flux bath



LAYOUT of cleaning, tinning and inspection departments, showing relative positions of the various tanks and fixtures. Pickling operations in this diagram are indicated as descaling operations

compact and capable of handling fairly high production despite the fact that it is not a continuous or conveyor process.

Tin is ideally suited to use in connection with refrigerator interiors since it does not form poisonous salts which might contaminate foods, as do some other metals; also it presents a pleasing bright appearance, is easy to keep clean, and can be applied to steel wire readily and at moderate cost.

Refrigerator shelves are of bright basic wire and spot welded in their assembly. They are trucked to the tinning department and first routed through a special type of cleaning machine of the "merry-go-round" type. It comprises five 42 x 60-inch tanks arranged in a circle about 9 feet in diameter. At the center is a vertical shaft carrying six arms which extend over the tanks and which may be raised or lowered so that parts hung on racks at the end of the arms may be dipped into and raised out of the various tanks.

Racks are copper bars about 5 feet in length, with four points of suspension for hooks carrying the parts to be cleaned. The bars lower into V-block contacts at either end of a tank so that, if desired, any tank may be electrified. The arms raise, move ahead the distance of one tank and lower in cycles which may be set automatically or manually controlled, carrying the racks of parts clockwise through five tanks and back to the loading and unloading station where they are removed and trucked to the tin baths while uncleaned parts are hung on the emptied rack.

Two Pickling Tanks Used

The five tanks are, in succession, a vapor degreaser, first pickle, second pickle, hot water wash and flux dip. The degreaser is of the standard type using trichlorethylene as the degreasing agent. The first pickel tank is kept at 180-190 degrees Fahr. by steam coils and contains the usual sulphuric acid pickling solution, concentration 7½ per cent by volume. The second pickling tank is a similar solution, held at 140-160 degrees. The wash tank is heated by live steam and water is circulated to remove acid washed from the parts. The flux dip is unheated standard zinc chloride flux solution, 50 degrees Baume.

As sludge builds up in the first acid tank, its contents are drained and acid in the second tank transferred to it, fresh acid being placed in the second pickle tank, thereby conserving on acid consumption.

Function of the flux dip is to prevent any slight oxidation of the wire before it is started through the tinning process where it receives another fluxing treatment before dipping.

By means of this merry-go-round cleaning setup considerable space is saved over a continuous in-line setup of tanks and results so far experienced with the unit have shown the cleaning to be thoroughly effective.

As shown in the accompanying layout of the department, there are three tin pots centrally located in the building, with operators on both sides of each tank. The refrigerator shelves are tinned in the two units at the right, the third unit being used for other specially processed work. The shelves are dipped manually in the second flux tank, then into the tin pot, the oil stripper and two quench solutions.

Each tin pot, fired on the bottom by two rows of gas burners, holds 10,000 pounds of the alloy used for coating the shelves. Outside dimensions are 60 x 73 inches; inside 36 x 48 inches. A 75 per cent tin, 25 per cent lead alloy is used, with a melting point of 378 degrees Fahr. Temperature of the pot is controlled through pyrometers at about 525 degrees. This higher temperature is used to insure a good boiling action when the part is dipped into the tin, so that any dross on the top of

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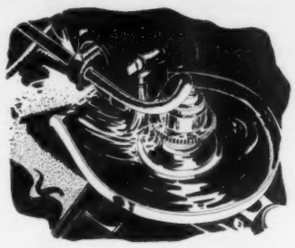
RIGHT DOWN YOUR ALLEY



Better Cutting Oil Saves Cutter Costs, Increases Production

Speeding up production on gear shapers in a Michigan manufacturing plant recently presented a problem in gear cutter maintenance. Under high speed operation, excessive tool wear indicated the need for a better cutting oil but the plant manager, objecting to the higher cost, tried out a number of low-priced lubricants.

With the best of these cheaper oils the cutters produced only 15 to 18 pieces per grind and it was necessary to grind off each cutter an average of .015 of an inch to put them back in shape.

Here's where the Standard Lubrication Engineer came in. He recommended a special high grade cutting lubricant. Tests on this oil showed an increase to 30 pieces per grind and less than .005 of an inch removed from the cutters at each grind.

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A booklet by this title is available to you from Standard's library of monographs. It covers the important factors of operation on external, internal and centerless grinding and the oil requirements for these operations. On the theory that an understanding of the problem is half the solution, this booklet will be valuable to those men interested in reducing grinding costs. Write for this or booklets listed below. Address Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago, Illinois.

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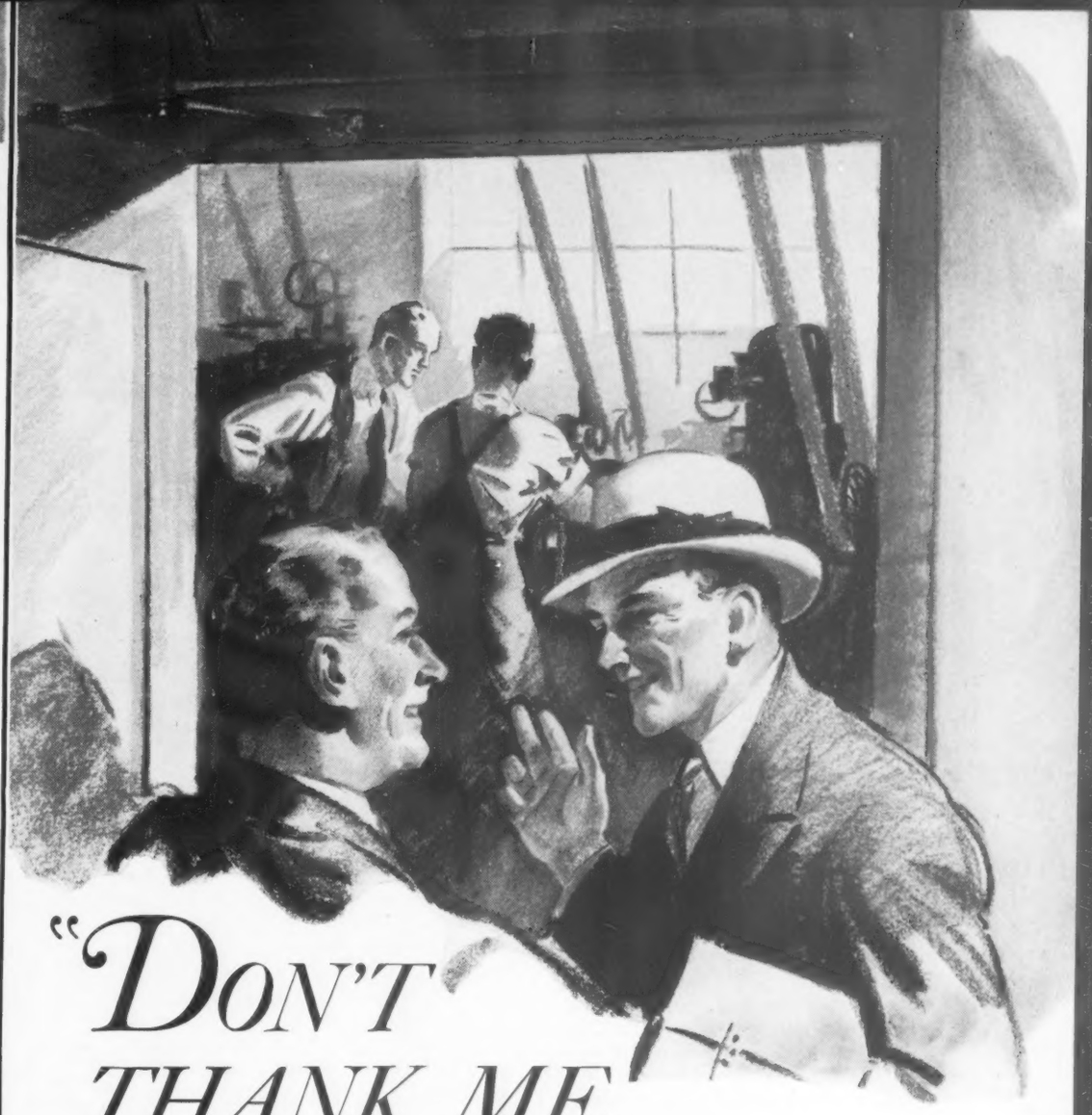

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Although thoroughly familiar with lubricants and their application, Standard Engineers know that conditions vary from plant to plant, even on machines of the same type and make. The men on machines, the foremen in charge, the plant engineers—all have an intimate knowledge of the equipment they operate. A Standard Lubrication Engineer values and respects their opinions.

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WELDING, ETC.

BY ROBERT E. KINKEAD

Securities of Welding Companies to be Offered

INCREASED activity among financial houses will soon be reflected in public offerings of securities of companies which operate in the welding industry.

Far from discouraging such activity, we are for it.

By the law of averages, some of these projects will become enormously profitable; others will not. Some welding companies have been financed out of profits, others by arrangement with their creditors, and some by the public. There is no indication that the method of financing determines whether or not the company will become sound and profitable.

There is no simple formula which may be applied to tell whether a proposed issue should be bought. Profits usually arise from a combination of able performance in three fields — new developments, good manufacturing methods and smart distribution. Securities issued as a result of some financial checkerboard play are poison to the outsider. New capital for expansion in desirable fields is often legitimate, provided management is seasoned and able.

The danger of public financing in the welding field arises from the fact that the industry is prosperous and was one of the first to come out of the depression. The story of the welding industry is meat for the slick security salesman. Its expansion depends on new developments and new uses of welding rather than on the general state of business. That the industry will increase in size many fold is a foregone conclusion.

The SEC has not relieved the investor of the consequences of his own folly in the matter of buying securities although it has certainly given him a better run for his money. Investment in the welding industry requires the same careful study and analysis as investment in others although the chance for success is high in this rapidly growing business.

IN this column, the author, well-known consulting engineer in welding, is given wide latitude in presenting his views. They do not necessarily coincide with those of the editors of STEEL.

• • •

New York Building Code Will Advance Welding

RECENT adoption of a new building code by the City of New York involves acceptance of welded construction on a par with riveted construction subject to conditions which were formulated and recommended to the Board of Aldermen by the American Bureau of Welding.

The same recommendations have been adopted by a number of other cities in the United States and Europe. They are based upon experience in the construction of more than 350 buildings, none of which has ever failed. Section 8-1.2 of the New York code requires welding operators to be examined by city government officials in accordance with qualifying methods previously used. A further requirement is that established engineering methods shall be used in the design of the structure.

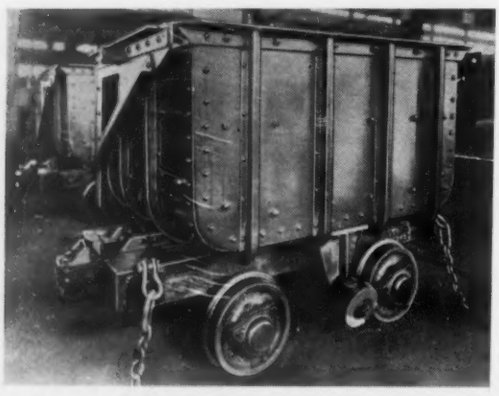
In spite of all that may be written due to this or any other code, the final safety of welding practice depends upon the skill and good intent of all of the people involved in the procedure. Experience with welding over a period of 25 years is convincing evidence that this factor is adequate protection whether the process be welding or something else. It is the same principle that permits the great banking structure of the country to function smoothly. This is merely another way of stating that 999 people out of a thousand are honest and intend to play the game according to the rules and will refuse to play, particularly in the case of welding if it is not safe for the public, regardless of what the rules say.

As has been noted in this column before, welding practice results in radical changes in design as illustrated by recent designs for buildings made by the Austin Co., Cleveland. Exceptionally rapid progrss may be expected in New York after January first, when the new code becomes effective.

Develop Oil Fired, Low Pressure Heating Boiler

H. C. Simmons' Sons, North Bennington, Vt., manufacturers of steel heating boilers for the past 59 years, have developed a new, oil fired, low pressure, heating boiler. Known as Simoil, it is claimed to yield an efficiency of 85 per cent with a stack temperature of 350 degrees Fahr. Air is preheated and processed with the fuel before entering the burner nozzle in the firebox. The casing is constructed integrally with the boiler and is hollow to aid flow of preheated air. This construction simplifies installation and eliminates the need for lagging. Boiler shell is of ⅜-inch firebox steel and 2-inch firebox tubes are used. Casings are of 10 gage blue annealed steel. Units are finished in natural gray priming coat and a self baking enamel of any desired color. The company is prepared to sell rights to the manufacture and sale of this unit. It also now is working on the use of this unit with efficient stoker combustion of coal.

Nickel Steel Satisfactory in Mine Cars



INTERNATIONAL NICKEL CO., 67 Wall street, New York City, has ordered 123 more Granby-type mine cars, again specifying nickel steel to satisfactorily reduce dead weight and better resist abrasion and corrosion. Built by Canadian Car & Foundry Co. Ltd., Montreal, each weighs 6500 pounds and has capacity of 56 cubic feet. Plates and angles are of S.A.E. 2320 steel containing 3.5 per cent nickel

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POWER DRIVES

Reducing Peak Power Costs Through Use of the Gas Engine

BY RALPH S. WENNER*
Industrial Department,
Ohio Fuel Gas Co., Toledo, O.

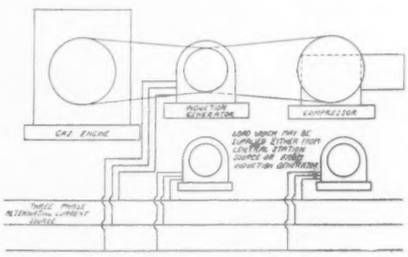
STUDY of the use of gas engines in industrial plants has commonly been along the line of use for the generation of power or for application direct to single loads.

In the first case, investment cost is high, especially if provision is made for occasional peak loads and stand-by units added.

In direct power applications usually only a small proportion of the equipment is applicable to gas-engine drive because of the high load factor required which usually leaves a considerable proportion of the load for public utilities at a higher rate. Some applications have been made on lineshaft drives or where a single application represented the entire load.

Gas engines are accurately rated, and definitely limited as to the load they may carry. They will not carry any appreciable overload for even a short period without the danger of stalling. Consequently the size must be determined by the maximum load — no matter how slight its duration — which may reasonably be anticipated. Even though consideration is given to reasonably constant loads only, eliminating all others, conditions where the engine carries less than rated load for at least 90 per cent of the operating time must be accepted, thus exacting penalties in the form of lowered efficiency and higher first cost.

All efforts have been made toward replacing the electric induction motor. The solution is to use the motor, not replace it, but drive it with the gas engine.

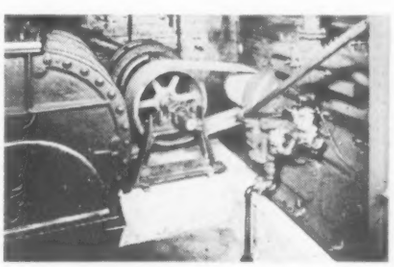


DIAGRAMMATIC sketch shows installation of automatic refrigeration load and auxiliary power and lights

Briefly, the underlying theory is that a gas engine and a mechanical load are both connected to an induction motor or what may better be termed an induction machine, since only at certain speeds is its behavior that of a motor. When this induction machine operates as a motor it revolves at a speed slightly less than this synchronous speed. The more heavily loaded as a motor, the slower its operating speed, although the lag seldom exceeds 10 per cent of synchronous speed for small motors or 5 per cent for large motors.

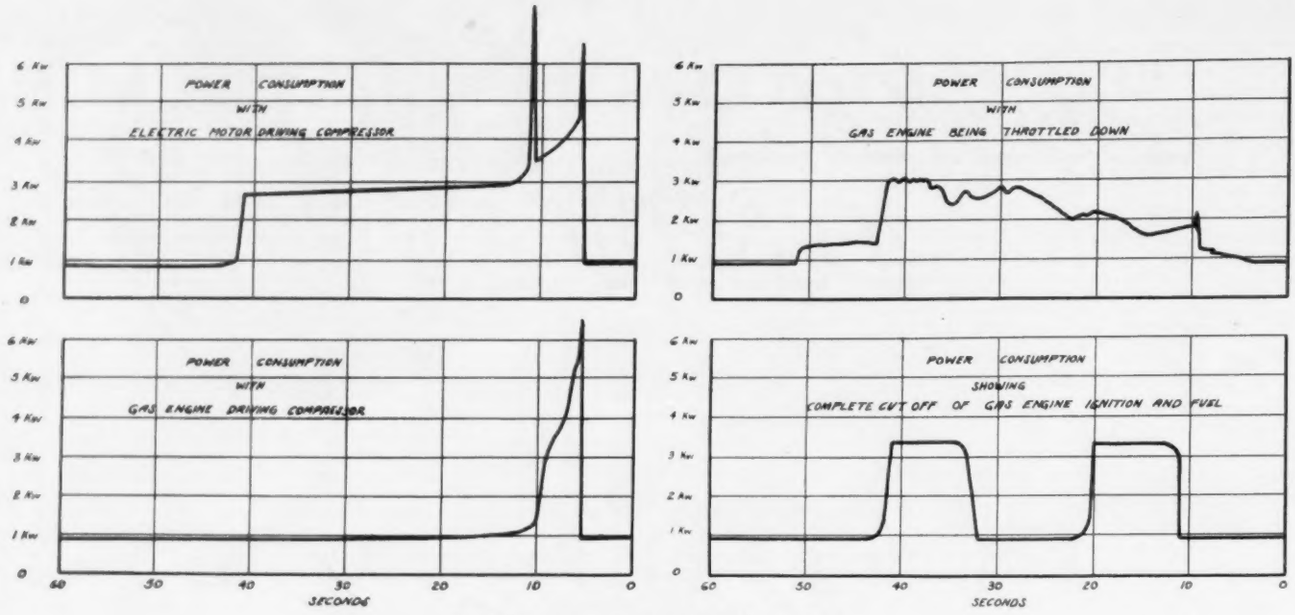
If, by the application of power to the motor shaft, the motor is caused to rotate at its synchronous speed, then for all practical purposes, it is no longer receiving power from the supply lines. In the case described the gas engine will be driving the mechanical load through the motor as a jackshaft. The motor will be merely idling.

If the speed of the system is further increased by increasing the engine speed, the induction machine will become an induction or synchronous generator. To perform this function it is dependent upon the line voltage for excitation. The voltage and frequency which it generates are exactly the same as that of the supply line, so it is suitable for use by any other equipment connected to the line. Even if that part



GAS engine of 120 horsepower is here connected to a 75 horsepower motor driving blower with constant 40 horsepower load

*Abstract of paper presented at National Conference on Industrial Gas Sales, June 8 and 9, 1937, at Palmer House, Chicago.


POWER CONSUMPTION WITH ELECTRIC MOTOR DRIVING COMPRESSOR
POWER CONSUMPTION WITH GAS ENGINE BEING THROTTLED DOWN
POWER CONSUMPTION WITH GAS ENGINE DRIVING COMPRESSOR
POWER CONSUMPTION SHOWING COMPLETE CUT OFF OF GAS ENGINE IGNITION AND FUEL
6 Kw
5 Kw
4 Kw
3 Kw
2 Kw
1 Kw
0
60 50 40 30 20 10 0
SECONDS

THE Esterline charts on left show effect of engine on starting surges and extent of load carried by gas engine. Esterline charts on right show effect of failure of fuel or ignition; also engine and motor sharing load

of it should find its way back through the meter into the neighboring distribution system it could do no harm. It is completely identical with the supply, is dependent upon it for functioning and fails when it fails.

Use Largest Motor

In applying the gas-engine drive it is connected to the largest motor on the units to be served, as shown in the accompanying diagram of an ammonia refrigerating compressor load. The gas engine, which is approximately double the rated capacity of the motor, drives the compressor through the motor as an electrical jackshaft. When operated above synchronous speed the motor acts as a generator feeding power into the distribution lines in the plant thus decreasing the power consumption through the incoming meter. The demand charge is paid on all electrical equipment and is always available under any conditions and for excitation. The consumption, however, is reduced and a source of power for the connected unit is still available in case of failure of the power supply.

This setup is especially applicable to refrigeration and compressor units, air conditioning and blowers to furnaces and heat treating. It is believed that practically all industrial plants have one or more drives to which this type of installation may be made.

The focal point of this idea is in the triple combination of engine, induction machine and mechanical load. Generation is accomplished with an induction machine more simply than by any other means. No additional equipment is required to provide voltage and frequency regulation. With a synchronous alternator, the user would be obliged to accept responsibility for keeping in step with the line both as to voltage and frequency. This would involve special equipment and added investment.

In case of power failure, means would have to be provided for preventing interference from this generator beyond the power company's meter. But with the induction generator there is not the slightest possibility of interference or damage. Only a small amount of power is required for the purpose of excitation and regulation, which is paid for on the same basis as that of any other power requirement.

The user makes a greater saving per dollar of investment than can be made through any other plan for several reasons. First, he can install and use an engine approximately twice as large as would be possible if only the mechanical load were considered. He installs an engine capable of delivering this mechanical load plus an electrical load equal to the capacity of the motor as a generator. His initial cost per horsepower is reduced.

This initial investment per horsepower is further reduced because he need not apply a safety factor for possible overloads. The electrical system cushions this. Also, in most cases, he needs just a simple gas engine without starting equipment, clutch or other auxiliaries.

He makes an operating saving because in the normal application he is operating always at full load. Let the mechanical load drop off and this system reaches out and takes a compensating electrical load. Let the mechanical load pick up and it drops an exactly equal electrical load literally at lightning speed and with no control devices. The control is inherent in the system itself and involves only very slight change in speed.

A further advantage is that no existing equipment is disturbed, removed, or replaced; it is merely supplemented. An electric motor is still connected to the load and hooked up with central station service. If the gas engine fails, the wheels keep turning just the same. This plan eliminates the fear, warranted in the user's mind, of cutting away from utility service.

Perfect Speed Control

Within certain narrow limits, which are well within the tolerance prescribed for most loads, this setup provides perfect speed control. Even a governor on the engine is not needed if its size is properly determined for the job. Let anything occur that might cause the engine to falter; the motor is there to take any share of the load and to guarantee that the speed will drop only to slightly below synchronous speed. Should anything occur to cause the engine to attempt to run away, perfect braking is applied through the generator.

It usually gives the user the further advantage of protection, in the case of prolonged power failure, for certain loads which must keep operating, as it continues with the mechanical load to which it is directly connected. This is important with a refrigerating load, or a gas or air compressor, or a blower for supplying combustion air to furnaces, and in many other cases.

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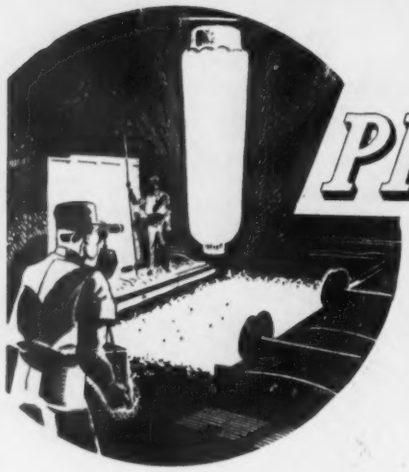
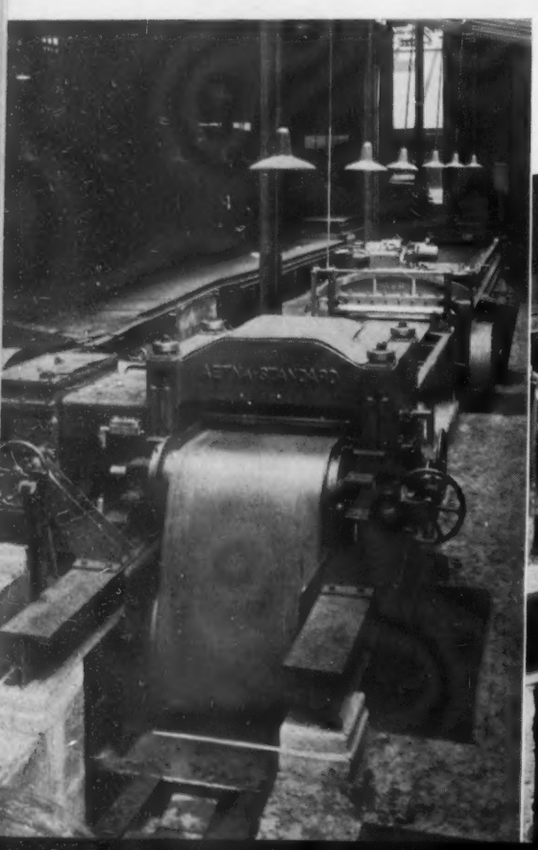


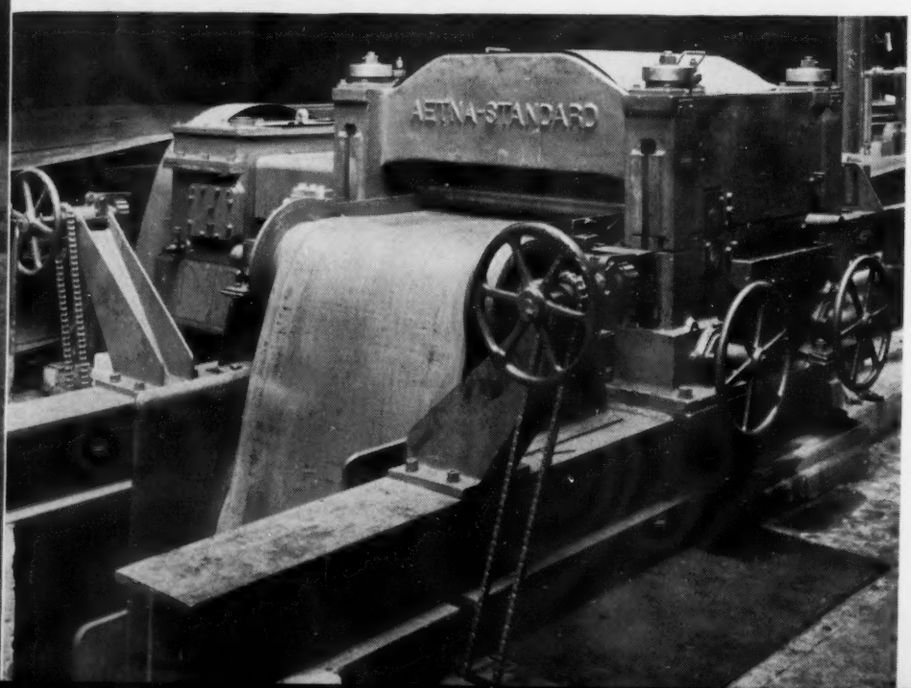
PROGRESS IN STEELMAKING

New Line Cuts Sheets to Length and Width, Free from Breaks and Camber

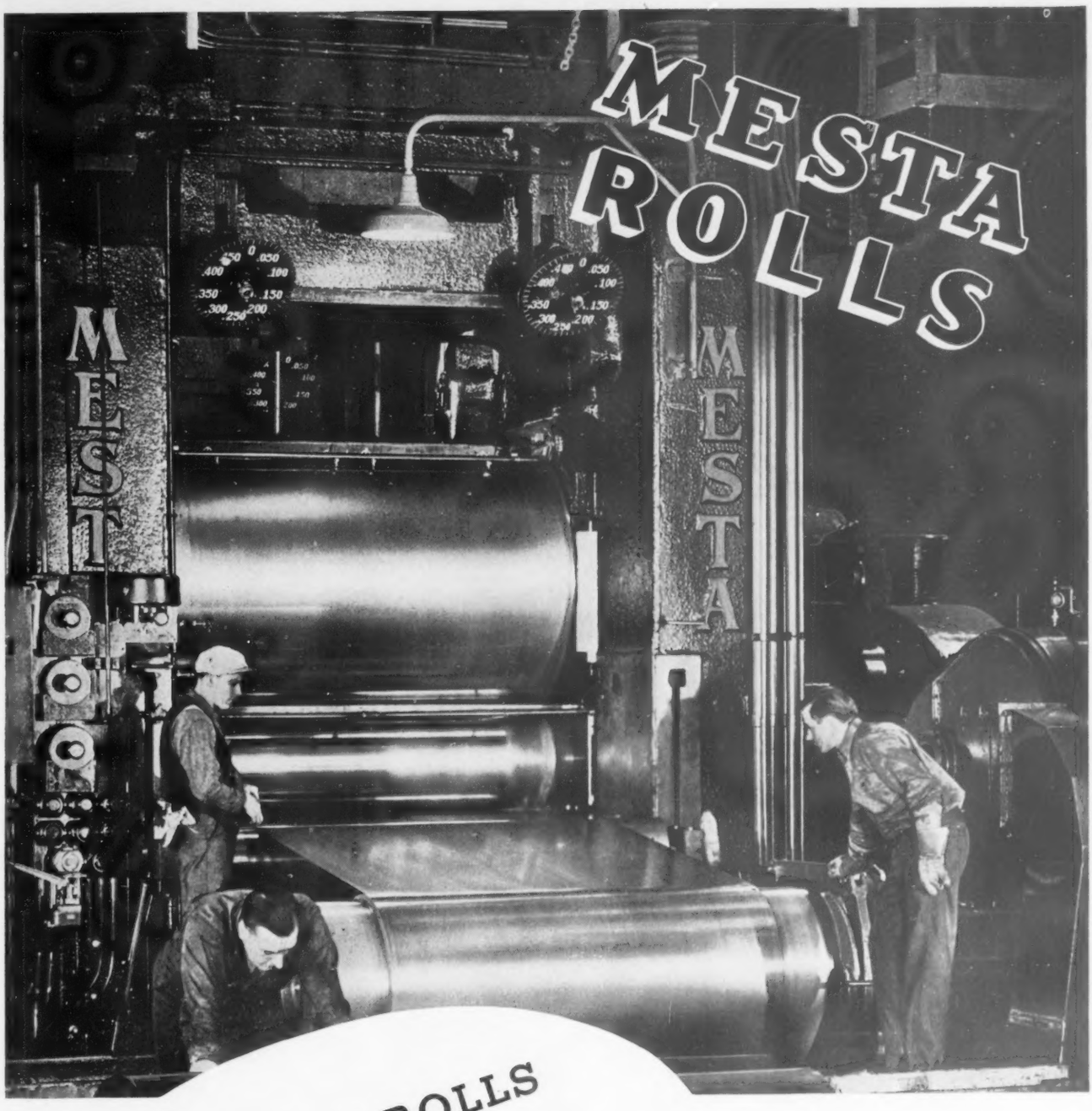
BY MEANS of a new cut-to-length and squaring line, sheets now are being cut directly from hot rolled strip steel in coils at the Ambridge, Pa., plant, of the H. H. Robertson Co., Pittsburgh. These sheets are used in fabricating Robertson steel floor sections, and are 18 to 38 inches wide and 6 to 24 feet long. Formerly the company bought sheets free from camber and had to pay extra for this quality. It bought in random lengths, resulting in considerable scrap loss. With the new equipment the company automatically produces flat and square sheets free from cross-break and camber, and can cut to any desired width and length from the same coil. Thus it does not need to pay any extras over and above the price of plain hot rolled strip steel in coils. Too, the scrap loss has been cut down materially. Based on the experience at the Ambridge plant, this equipment is believed to have possibilities for application to a wide field where hot rolled square sheets are required, as in the steel barrel and many other fabricating industries.

Installed by Aetna-Standard Engineering Co., Youngstown, O., the new equipment is an assembly of existing units synchronized into a continuous production line. Included are an uncoiling processing leveller, upcut shear, shear gage table, side trimming slitter, runout table, pinch rolls and piler. Speed of the leveller is 150 feet per minute with cuts more than 10 feet long and 75 feet per minute with cuts 6 to 10 feet long. The shear gage runout table runs at 220 feet per minute, which also is the delivery speed of the slitter and runout table. Tonnage sheared and squared varies from 75 to 120 tons in eight hours,



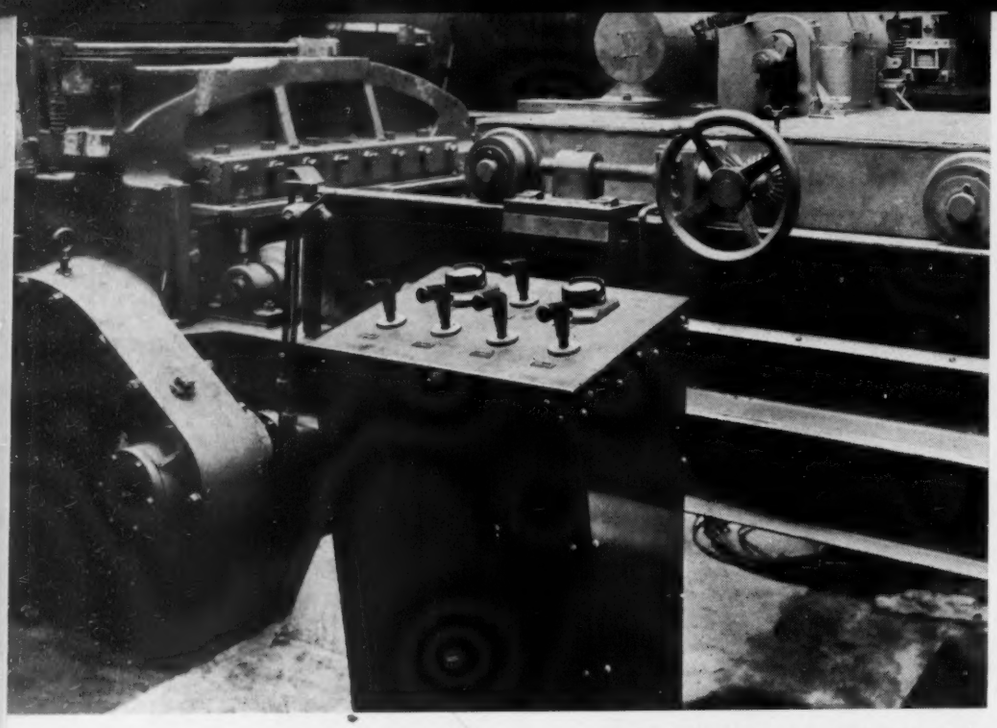


GENERAL view, left, at entering end, of new cut-to-length and squaring line. Entering end of uncoiling processing leveller, below. It is equipped with micrometer dials for accurate adjustment of rolls to thickness of strip



WORKING ROLLS
and
BACKING-UP ROLLS
for
FOUR HIGH CONTINUOUS
COLD STRIP MILLS

MESTA MACHINE COMPANY - PITTSBURGH



A VIEW of the control desk with upcut shear and gage stop in background. Shown also are the gearmotor and trigger switch

depending on gage. The entire line is operated by two men.

As needed, coils are moved from a coil storage on a conveyor and lifted by crane and transferred to a ramp down which the coils move by gravity. At the lower end of the ramp is an air tripping device which prevents feeding until a coil is required and which permits only one coil to go into the coil box at a time. When a coil arrives in the coil box, the operator jogs the uncoiling processing leveller until the end of the coil is in the proper position for entering. In the coil box are side guides which position the strip centrally and feed it over a roller into the processing leveller. This roller is of an equalizing type. Its function is to keep the strip straight and to equalize any camber in it. Because of this equalizing feature no side guides are required in the processing leveller. In the leveller are 17 working and 57 backing-up rolls, all 2½ inches in diameter. Through the action of these rolls the material is delivered commercially flat and in a plastic condition which eliminates any chance of future cross-breaks.

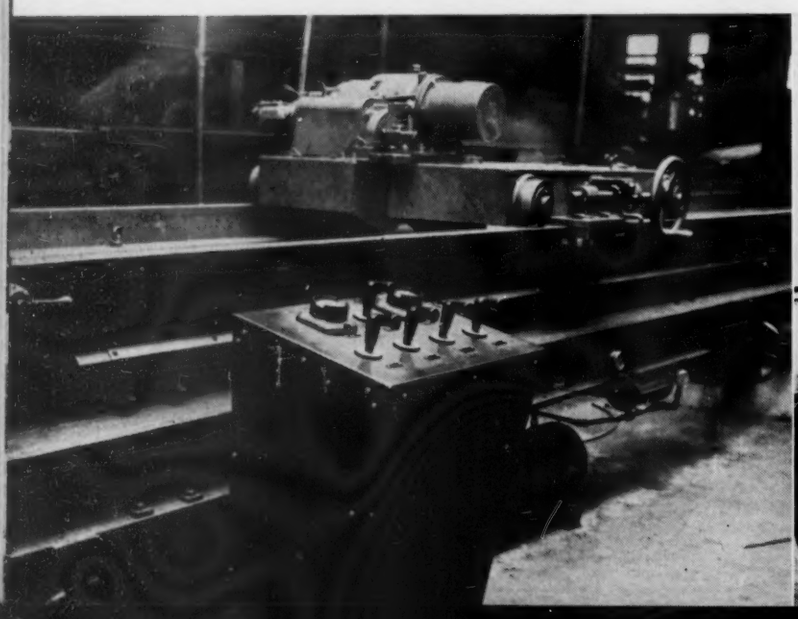
From the leveller the strip is delivered across a humped table and through an upcut shear onto a driven chain shear gage table which has a movable carriage adjustable for the length of cut required. On this is located a flag switch and a high torque gearmotor for operating the positive stop. The table also is equipped with side guides which are operated automatically by means of an air cylinder and a solenoid valve connected to the flag switch. These guides hold the material at right angles to the shear. Working with the side guides on each side are hold-down clips which prevent any buckling between the shear and the stop. As a result of this gripping arrangement, variations in the length of cut sheets are held down to less than 1/16-inch.

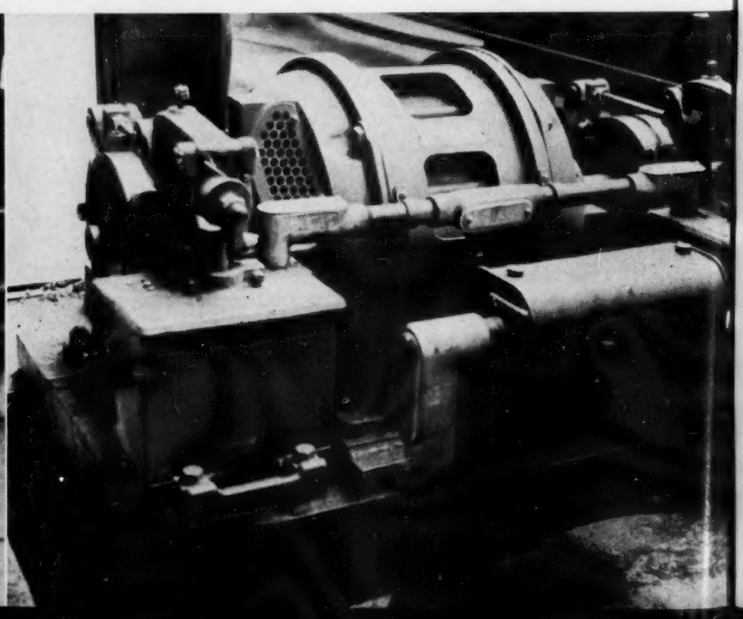
As the material proceeds through the shear and comes up against the positive stop, it energizes the side guides and hold-down clips, whereupon the cut is made. Dropping of the lower shear knife into its normal position after the cut energizes the gearmotor, raising the positive stop and allowing the material to move down the table. As it clears the flag the latter drops, also dropping the positive stop and resetting the entire control for the next cycle.

Still guided by the side guides, the cut sheet enters a side trimming slitter with hold-down devices, this insuring side trimming free of camber and accurate to width. The slitter is equipped with a cutter which reduces the side scrap to 6 to 8-inch lengths. The cut material then passes over a runout table and through pinch rolls to a piler of simple but unusual construction. No manual work is required. The finished, sheared sheets flow by gravity and come to rest in an inclined position on a bed made of steel beams with adjustable side and end guides. An air cylinder moves the inclined bed to the horizontal position for unloading.

An interesting drive was designed

FOR information in the accompanying article STEEL is indebted to E. A. Matteson, sales engineer, and William Rodder, chief draftsman, Aetna-Standard Engineering Co., Youngstown, O., and C. P. Croco, steel mill engineer, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.





ANOTHER view of the control desk with the shear gage in the background, at left. This view shows also the trigger switch, cam limit switch and gearmotor. Shear motor, right, showing the two magnetic brakes and the cam limit switch

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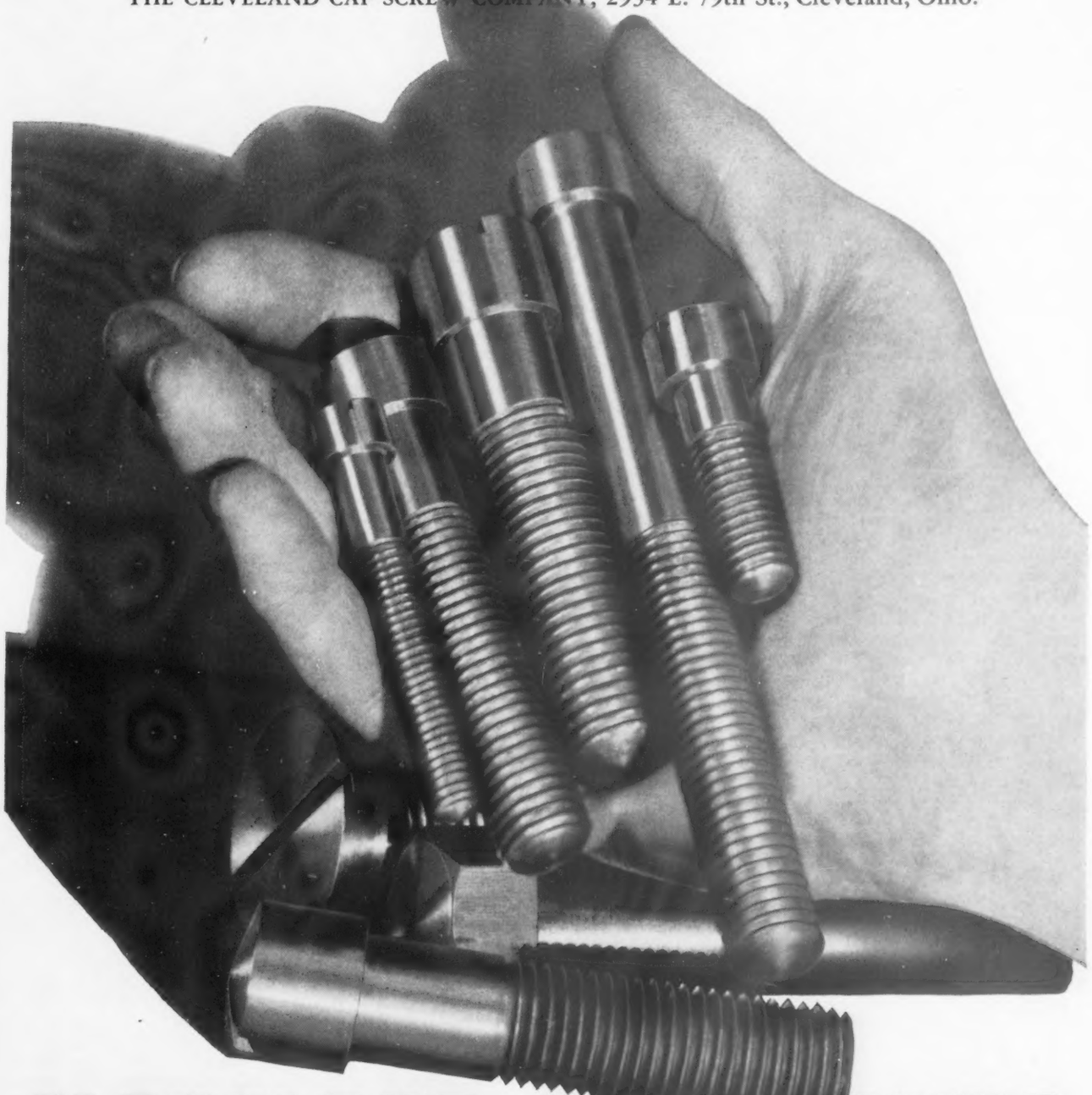

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for the new cut-to-length and squaring line. It is operated throughout on alternating current with a resulting saving in the original cost of the equipment and a pronounced saving in the cost of operation per ton of steel cut. Power for all of the driving motors on the lineup is obtained from a 440-volt, 3-phase, 60-cycle circuit. The uncoiling processing leveller is driven by a 60-horsepower, 870-revolutions per minute, semi-enclosed squirrel cage, induction motor. The shear is driven by a special, high torque, 450-revolutions per minute, induction motor designed to have a low inertia.

Two Brakes Are Used

Two magnetic brakes are used to obtain accurate stopping and to reduce the inertia of the shear drive. A special cam limit switch is provided on the shear drive which operates in conjunction with the flag switch to start and stop the shear and raise and lower the gage stop. The flag switch is placed just ahead of the gage stop. The strip strikes the flag switch and starts the shear. Before the shear blade hits the strip, the end of the strip comes against the gage stop. The shear makes one cut and stops. The limit switch on the shear stops the shear and causes the gage stop to be raised. An additional cam on the limit switch operates the solenoid valve on the air operated squaring sideguards. The gage stop is driven by a special high torque gearmotor having an output speed of approximately 100 revolutions per minute. A limit switch on the gage stop motor allows it to turn the crank on the stop 180 degrees at each operation, thus raising the stop at one operation and lowering it on the next. As the end of the sheared piece clears the flag switch, the stop is lowered.

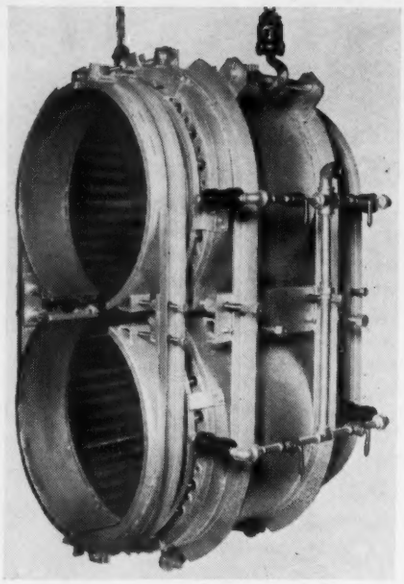
To obtain a space between the sheared piece and the strip following, the conveyor chain is driven at a higher speed than the uncoiling lever by a 10-horsepower, 1150-revolutions per minute, squirrel cage, induction motor. The sheared piece then is conveyed to the side trimmer which is driven by an 870-revolutions per minute, squirrel cage, motor of the induction type.

A small desk type control bench is provided on which the switches are mounted for inching all of the drives and start stop switches for the lineup. Either manual or automatic operation of the shear can be obtained from the switches on this bench.

In connection with the new line, H. H. Robertson Co. has applied for one method and two apparatus patents while Aetna-Standard Engineering has applied for one apparatus patent.

Radiant Unit Heats Rolls To Working Temperature

Preheating of hot mill rolls now is being accomplished by radiant heat application. The radiatube roll heater, shown in the accompanying illustration, is designed to conform to the contour of the rolls being heated. All heat is transferred by radiation from the heat-resisting tubes which are internally heated by specially designed burners supplied with complete air-gas mixture under positive pressure from a Kemp industrial carburetor. By using this method a high-velocity flame, burning to complete combustion regardless of tube temperature, is secured. A multiplicity of tubes fired alternately from opposite ends provides adequate heat transfer surface to give high-thermal efficiency. The unit is backed up with several inches of high-grade insulation and mounted in a heavy steel supporting frame with adjustments provided to fit the unit closely to both upper and lower rolls.



Gas-fired radiant unit for preheating steel mill rolls

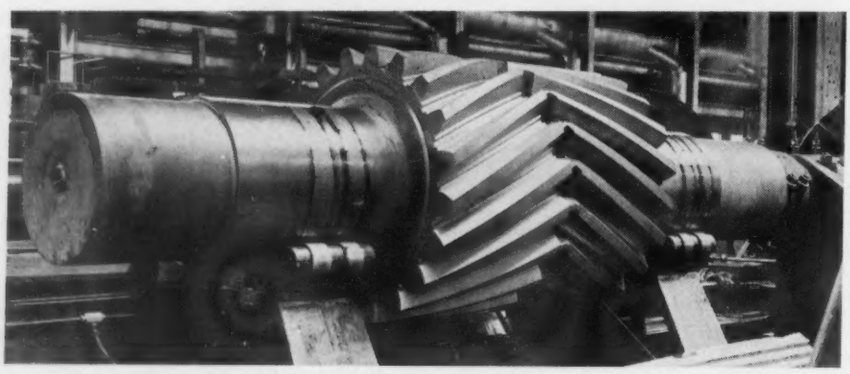
Initial installations show operating efficiencies that will permit large savings to the average rolling mill operator.

The equipment is built by the C. M. Kemp Mfg. Co., Baltimore, under license arrangement covering existing patents as well as under patent applications which have been assigned to the company.

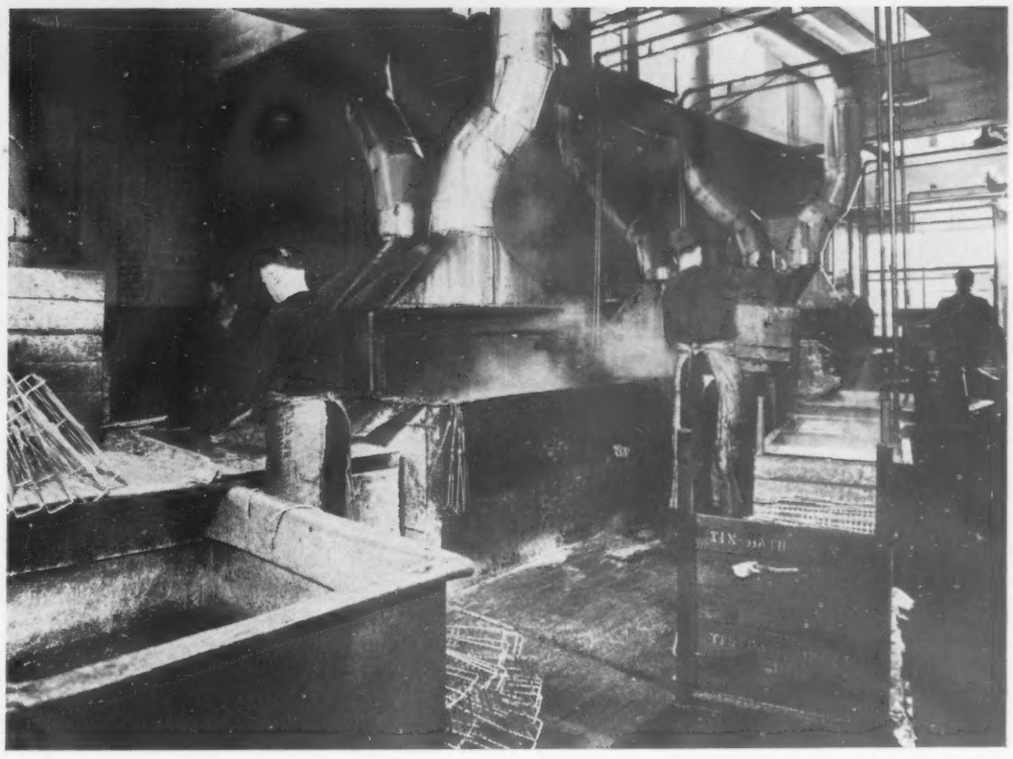
Temperature of Work Is Indicated Continuously

Detecting the temperature of work instead of the furnace temperature has been made possible by the development of a new device which is mounted on the exterior of the furnace away from destructive heat. The principle of operation is that a typical sample of heat is brought continuously to it. A protective covering is not required, inasmuch as the device is unaffected by gas, dirt, vibration or careless handling. Applied to forging furnaces, the instrument detects the internal temperature of the furnace from a cool exterior location. The detector tube sights through the open end of a target tube to the closed end which projects inside the furnace. The target tube is cemented in the furnace wall. The device may be used with a recorder to indicate and record temperatures continuously. It also is applicable to the operation of signals or controls, as well as slab and billet heating furnaces.

Machining Large Pinion



LARGE gears are required in steel rolling mills. This view shows a slabbing mill pinion being machined at the plant of Mesta Machine Co., West Homestead, Pa., on a special gear planer built by the company. The pinion is a 0.50 to 0.60 carbon steel casting, annealed. It has 46-inch pitch diameter, 7.2257-inch circular pitch, 20 double helical cut teeth and 65-inch face



THIS group of tanks comprises one of the tinning units. In the left foreground is a flux tank. The operator is dipping a rack of shelves into the molten tin. At his right is the oil stripper, hooded to remove fumes. The other operator is removing racks of shelves from the stripper to the two quench tanks directly beind the truck in the foreground

Hot Tinning Refrigerator Parts

(*Concluded from Page* 52)

the bath is forced away from the shelf as it is dipped into and removed from the bath. The 75-25 alloy is used because it is one of the lower melting point tin alloys, and because it is less costly than pure tin. If the percentage of lead is increased it detracts from the bright appearance of the finished product.

Tin Baths Are Not Covered

Metal in the tin pot is replenished by adding fresh alloy in the form of small pigs. Some dross will build up on the surface of the bath and this is occasionally skimmed off. Surface of the bath is not covered with any material such as charcoal to prevent oxidation, since it is felt this might interfere with proper fluxing by adhering to the parts.

After being dipped the shelves are transferred to the oil stripper, being hung from hooks attached to a horizontal bar arranged so that the parts will be entirely submerged in the oil bath. The latter is contained in a 5 x 6-foot tank heated by low-pressure gas burners to an average temperature of 400 degrees Fahr. This temperature, it will be noted, is well above the melting point of the alloy, and is held constant by pyrometric controls, the idea being to facilitate uniform flow of the molten alloy over the part. Excess tin drops off the parts to the bottom of the tank into a trough and reservoir at one end from which is drawn off at intervals into a ladle for reuse.

The oil stripper dispenses with the need for shaking the parts after they are dipped and speeds up the entire process. The bar on which the shelves are hung is connected through a special cam arrangement and is agitated slowly to strip excess tin from the shelves while they are submerged in the oil. The speed and extent of this agitation are important points in obtaining a uniform coating on the shelves, and avoiding build-up of tin at corners and joints.

Oil used in the stripper is common motor oil, with high flash point and minimum tendency to coke up and become sludgy.

As the shelves are removed from the stripper after being in the oil a few minutes a considerable amount of the oil clings to the tinned surfaces. One at a time, they are transferred to so-called quench tanks, the first a standard alkali cleaner which is heated by steam coils and removes all traces of oil from the tin, and the second a tank of soluble oil which removes any of the cleaner from the wire. These two quench tanks are adjacent, 3½ x 5 feet in size, and placed conveniently to the stripper, so that a minimum of handling is necessary.

Following the removal of the shelves from the soluble oil, they are placed on trucks and taken to the inspection department for visual examination of the coating. If the finish is satisfactory, the shelves proceed to a clear lacquer dipping tank and thence to a small oven where the lacquer dries quickly. No heat is used in the oven unless high humidity in the atmosphere slows up the normal air dry, in which case a low heat can be supplied to speed up the drying.

Parts Tested in Salt Spray

Quality of the tin coating is tested regularly by means of the salt spray method. To pass customers' requirements, the coating must stand up under 100 hours of salt spray. Defective finishes will develop rust spots or streaks, indicating a non-uniform tinning. Such defects usually appear at points where the wire of the shelves has been bent to form a sharp angle, or where longitudinal wires have been spot welded to the outer rim.

While production with this setup according to the size of the parts being processed, on an average it is possible to approximate 1000 pieces per hour. Each of the three tin pots can be worked from both sides, as the accompanying layout indicates, giving in all six stations for dipping. At the first tin pot, no oil stripper is used, the tinned parts being shaken manually before placing in the quench tanks. This unit is used largely for coating with pure tin.

HOW TWO M

EVERYTHING IDENTICAL but the steel.

But the gears at the right made of a special grade of U·S·S Carilloy Alloy Steel—will scuff less, run more quietly, and cost 12½¢ less per set. A typical result of close cooperation between our metallurgists and yours.

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that neither could have found alone

TO MAKE a cheaper set of gears is not difficult . . . if quality can be sacrificed.

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But to make a better *and* cheaper set of gears —gears which will run more quietly, scuff less and save 12½¢ per set in material cost—is an accomplishment of which any two metallurgists can well be proud.

This is the result of a cooperative study, extending over a six weeks period, by a metallurgist from Carnegie-Illinois and a metallurgist of a well-known automobile manufacturer. The first was thoroughly familiar with alloy steels and the limitless combinations of analyses and heat treatments. The second knew the requirements of their 1938 models and the advantages of their plant facilities. Working together, they could coordinate and pool their knowledge. They could achieve a result that neither could achieve alone.

Gears made of the new grade of U·S·S Carilloy Alloy Steel they recommended have been thoroughly tested. All the experiments are now complete. In the words of the laboratory report . . . "We find an exceptional superiority of the—— steel over the——steel now being used, especially with respect to wear and scuffing, a feature which must be watched closely on spiral bevel Hypoid gears. Since machining and heat-treating are not materially changed, the 12½¢ saving will be net."

As a result, this automotive concern has standardized on this new grade of U·S·S Carilloy Alloy Steel for the remainder of their 1937 production, as well as for all 1938 models, at a saving of several thousand dollars.

This is the kind of sincere side-by-side cooperation Carnegie-Illinois offers you. Our man and your man, working together, can achieve results neither can achieve alone.

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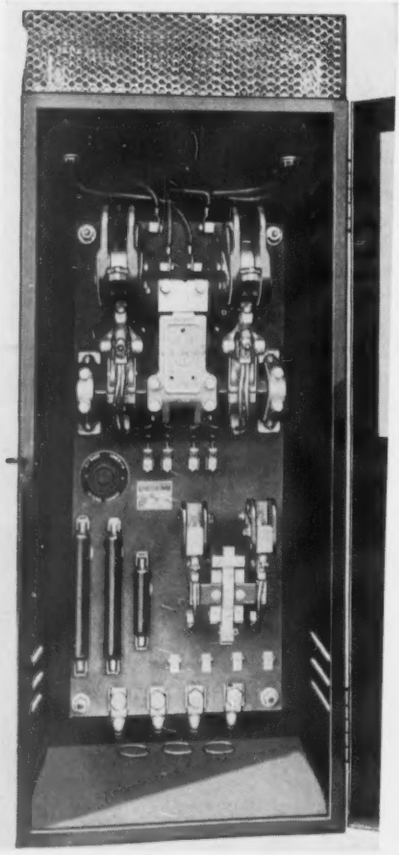
USS

UNITED STATES STEEL

NEW EQUIPMENT

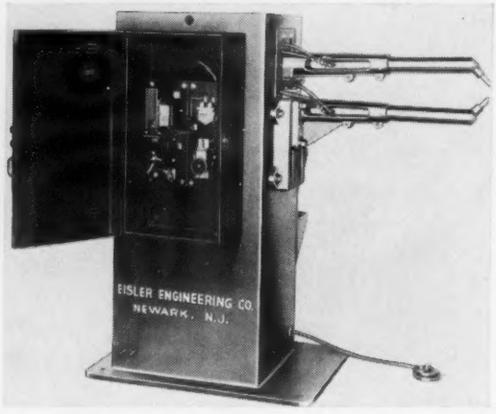
Lifting Magnet Controller—

Electric Controller & Mfg. Co., 2700 East Seventy-ninth street, Cleveland, has announced a new quickly adjustable, automatic discharge magnet controller for providing a quick, clean release of the load on any size or type of magnet. This controller uses a small, 2-position master switch with positions marked for lift and drop, quick release of the load being obtained by plugging the magnet with the proper value of current in the reverse direction, magnet disconnecting from the line automatically as the load is released. It is possible to vary the value of the plugging current which is allowed to flow. If line voltage changes or a different material or magnet is used, a slight turn of the rheostat dial on this new controller provides the proper plugging current. New type of wound-on-edge resistors, coated with vitreous enamel, are mounted in a ventilated enclosure on top of the cabinet. The small rheostat dial for adjusting the dropping out of the reverse-current contactor is on the left hand side of the panel which contains the heavy duty, mill type contactors used on this controller. Entire unit is completely new and has been made compact and narrow for minimum mounting requirements in rear or side of a crane cab. The controller is designed for any single lifting magnet up to 65 inches in diameter and a similar controller with more resistance capacity is also available for use with two or more magnets.



Lifting magnet controller has been made compact and narrow for crane cab installation

Eisler resistance welder is designed for making 100 spots per minute



♦ ♦ ♦

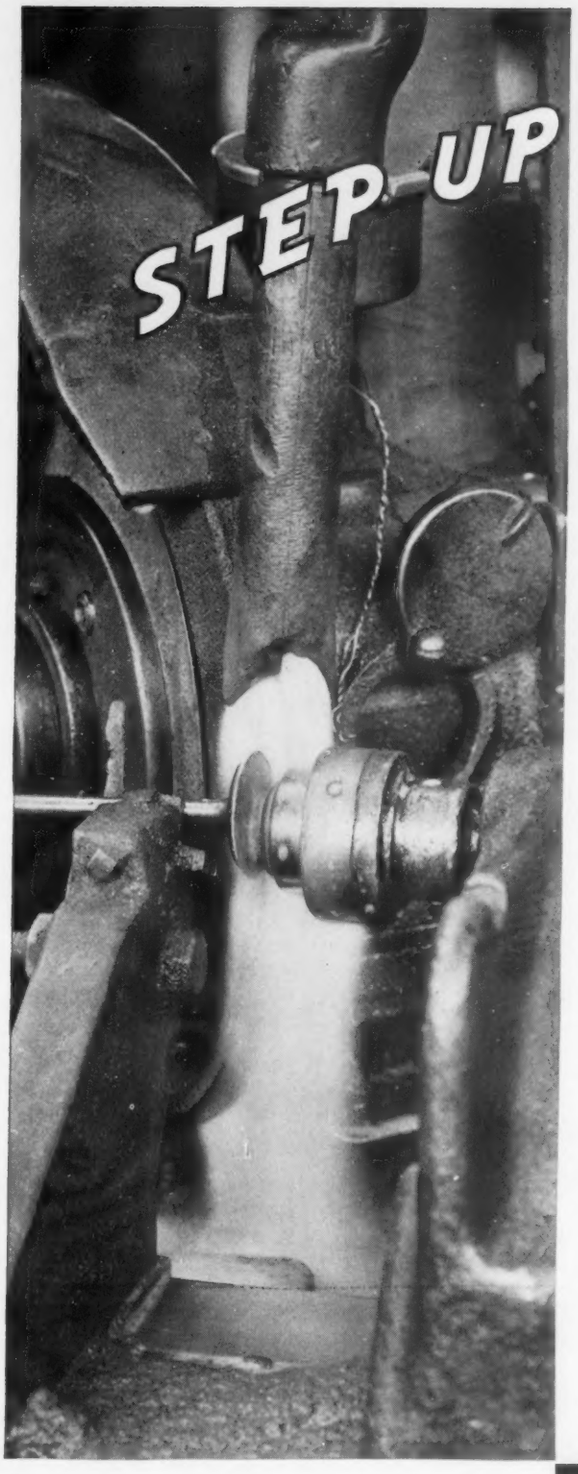
Spot Welder—

Eisler Engineering Co., Newark, N. J., has added a new resistance welder to its line of products. Welds on this new air-operated spot welder are controlled by means of a solenoid starter. By depressing the starter, the solenoid actuates the air cylinder which in turn closes the electrodes upon the work. The duration of the welding period is regulated by the automatic timer and contactor assembled on the side of the fabricated frame. The timer is adjustable to regulate current from 2 to 60 cycles in 110 divisions. An air pressure valve on the machine is used to regulate the proper air pressure, the welder operating on an air pressure of 35 to 60 pounds, depending on the nature of the work. Variation in type of work is facilitated by the interchangeable arms available on this welder. A water cooling arrangement passes water through the arms, electrode holders, and electrodes-water is circulated very close to the end of the electrodes. Arms on the welder are 36 inches long, but can be supplied up to a length of 48 inches. The welder is claimed to be capable of making up to 100 spots a minute. It has an air-cooled transformer and is equipped with an 8-point hand wheel for heat regulation.

♦ ♦ ♦

Midget Flame Torch—

Clayton & Lambert Mfg. Co., French Road at Madola, Detroit, has announced a new midget flame torch that burns in any position. This No. 99 torch has a small pointed flame $\frac{5}{8}$-inch in diameter by



MACHINE TOOL OUTPUT

...WITH SUNOCO

Increased cost of production can only be offset by increasing the production per unit of equipment.

Close limits of size, rapid removal of metal, decreased down time for tool regrinding and smooth operation of machines are largely dependent on the cutting oil.

Metal cutting plants large and small are finding SUNOCO permits more pieces per tool grind—thus increasing production.

SUNOCO makes possible greater accuracy, better finishes, steps up your production, reduces your down time, decreases your rejects and lowers your operating costs.

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EMULSIFYING

CUTTING OIL

SUN OIL COMPANY, PHILADELPHIA, PA., U. S. A.

Offices and Warehouses in more than 100 cities

Subsidiary Companies:

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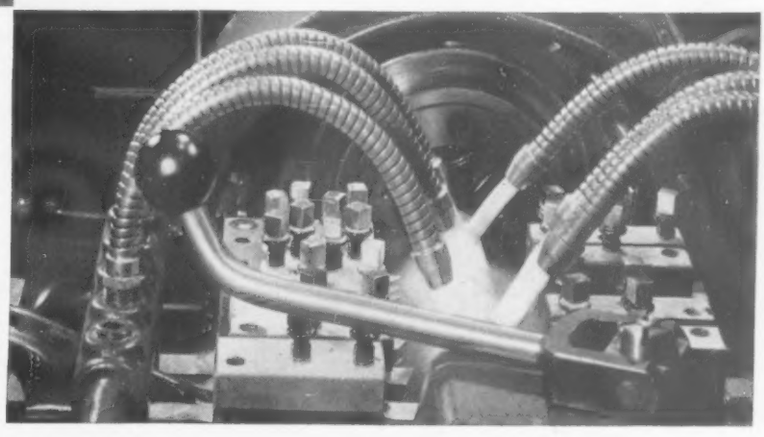
SUNOCO has won widest recognition for:

1. Aiding machines to produce at rated capacity.
2. Precision work, even at higher speeds and feeds.
3. Longer tool life.
4. Better finish.
5. Fewer rejects.

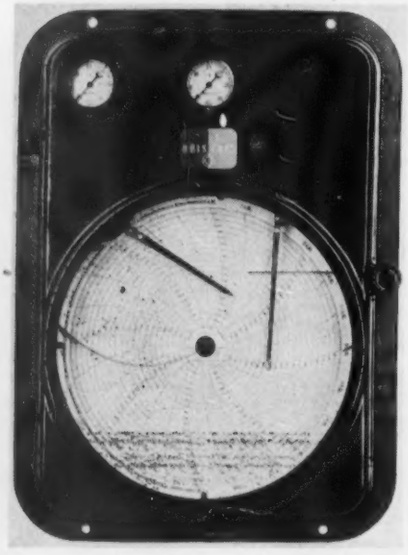


1¾-inches long at reduced flame. When opened wide the flame is same diameter but 5 inches long. The curved internal fuel feed pipe and heavy wicking allow this torch to burn in any position and because of the small size of the pint capacity tank it will go into close quarters. The burner is cast of a special alloy bronze and is two-piece. The jet block is renewable when worn, the jet cleaner pin is replaceable, and generator veins are steel lined. Brass forgings are used for handle brackets, filler plug, and for the lock-down T-handle of the pump. All fittings used on the drawn cartridge brass tank are mechanically interlocked to the tank. A control valve system allows the flame to be cut down to the small size and still burn with a hot blue flame.

♦ ♦ ♦

Pyrometer Controller—

Bristol Co., Waterbury, Conn., has developed the Pyromaster Controller, a new, round-chart, pyrometer controller. This instrument is a potentiometer pyrometer operating on a simplified principle and available in both pneumatic and electric types. It uses standard thermocouples and extension leads and is for direct ink-marking on a round 12-inch chart, or for indicating on a large scale. Bristol's Pyromaster Controllers require no lubrication and are not affected by plant vibration. There is no mechanical motion of any kind except when a change in the measured temperature takes place. The simplicity of the operating principle used makes it possible to put the entire mechanism in a standard Bristol instrument case. These potentiometer pyrometer controllers are automatically self-balancing and self-compensating for cold-end temperature changes. The pen arm or indicator is actuated in small steps that follow each other at a rate depending upon the rate of change in the temperature at the thermocouple. All lag is thus eliminated, permitting immediate response to changes exactly as they occur.

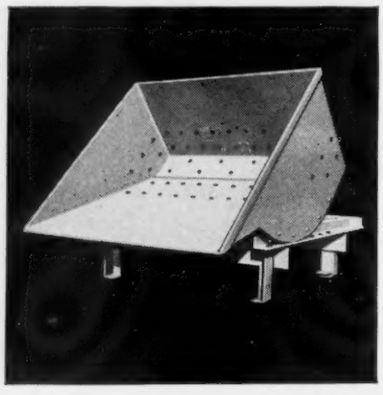


Bristol's Pyromaster Controllers require no lubrication and are unaffected by plant vibration

♦ ♦ ♦

Dump Hopper—

Roura Iron Works, Detroit, is manufacturing a new dump hopper for use with hand or power lift trucks for handling raw materials, parts, waste or finished products and especially designed for loads that are hot and for service in departments where the equipment is subjected to high heats. The new hopper is arranged for side dump and is also furnished for end dumping. Special alloy steel is used in its fabrication and sides and bottom are perforated, both precautions being taken to enable the hopper to resist warping. The unit, which has one cubic yard capacity, is furnished on legs or casters with any specified underclearance. It is equipped with a simple latch that holds the load securely in position and, when unlatched, enables the hopper to be emptied promptly and cleanly.

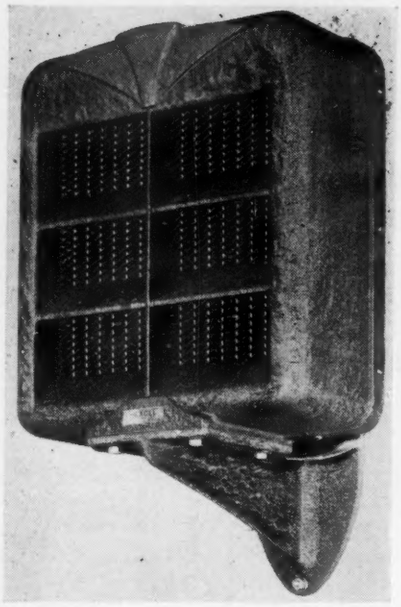


Roura dump hopper is designed for service in high heats

♦ ♦ ♦

Electric Heater—

Hexcel Radiator Co., Racine, Wis., is manufacturing a unit that is a complete electric heating plant occupying a wall space of less than 1½ square feet. There is no piping or auxiliary heating equipment and the heat radiating liquid is permanently sealed in. Installation is said to be quick and simple, as the unit, weighing but 45 pounds, is merely hung from the ceiling and connected to electric current. It may also be secured with base support, as illustrated. Heating elements are immersed in a non-freezing liquid that circulates throughout an all-copper twin-core. The low heat resistance of copper instantly transfers the heat to fan-circulated air. Incoming air at 60 degrees Fahr. is raised to 104 degrees Fahr. with the unit set for medium heat and to 135 degrees with unit set for double heat. Maximum B.t.u. output is 20,500, minimum 11,950, and air output is 250 cubic feet per minute. Standard, 220 volt, 60 cycle, alternating-current motor is used, but motors can be supplied for special currents. Heat production at medium heat is equivalent to 50 square feet of cast iron steam radiation or 80 square feet of cast iron hot water radiation. At double heat it equals 85 square feet of cast iron steam radiation or 136 square feet of cast iron hot water radiation. Due to the overhead air from the ceiling being circulated to the floor area by this unit, the equivalents of heat comfort in the lower room area are approximately 20 per cent greater than these heat production equivalents. A safety switch automatically disconnects current if the liquid should become too hot, while the unit is completely sealed and foolproof.



Electric heater can also be used as a cooling fan

♦ ♦ ♦

Plain Grinding Machine—

Brown & Sharpe Mfg. Co., Providence, R. I., recently announced the No. 5 plain grinding machine, a new small-size unit developed particularly for the rapid cylindrical grind-

INTRODUCING...

Greater lighting efficiency with the new

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Lamps

22% more light per watt . . . instant starting . . . high power factor . . . plus the long, detail-revealing light source which more than a million workers and their employers now enjoy. They are all yours in the new Horizontal Cooper Hewitt Lamps.

These "24-hour skylights" of low intrinsic brilliancy need no diffusing medium. The soft long-source light gets down into deep recesses, illuminates vertical surfaces and rests the eyes. All jobs are made easier —wherever sight is used.

Get the complete story of these new lamps. Let us explain why you can run many more of these light units per circuit with no increase in copper. Write for Bulletin 827DM. General Electric Vapor Lamp Company, 885 Adams Street, Hoboken, New Jersey.

GENERAL ELECTRIC
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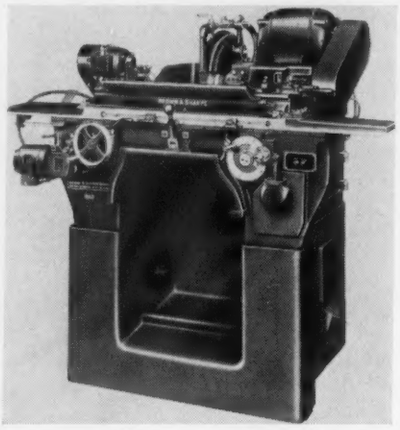
826

ing of duplicate small parts to close limits on a production basis. It is available in two capacities—3 x 12-inch and 3 x 18-inch, the shorter table machine being recommended for installations where the work is not over 12 inches in length and minimum floor space is an important factor. All operating controls and adjustments are grouped at the front of the machine, right at hand from the operating position. The recessed design of the base provides ample leg room for the operator to sit comfortably at the machine, while the convenient height of the table and controls provides for equally efficient operation from a standing position. Headstock and coolant pump are started and stopped electrically by rotation of the cross-feed handwheel, starting automatically when the grinding wheel is advanced toward the work and stopping when the wheel is withdrawn to unloading position. This feature, in combination with the headstock brake, aids materially in maintaining high production schedules. A lever permits cutting out the headstock and coolant pump motors when wheel-truing or setting-up. Wheel spindle, headstock, table and coolant pump are driven by separate motors, a push button station at the front controlling the starting and stopping of the entire machine. All electrical control units



Brown & Sharpe plain grinding machine has recessed base for comfort of operator

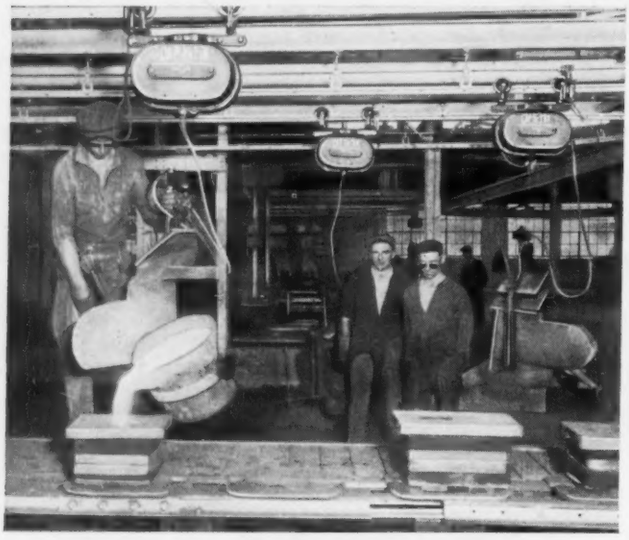
are built into the machine and are well protected yet easily accessible. An automatic oiling system lubricates the wheel spindle bearings, the cross-feed screw and full nut, the table and cross slide ways and the table driving mechanism of the machine. The coolant tank is integral with the bed casting and has removable cover and baffle plates. The centrifugal motor pump is also removable to facilitate cleaning of the coolant tank.

♦ ♦ ♦

Arc Welders—

Wilson Welder & Metals Co., 60 East 42nd street, New York City, has added to its line of welding machines a 150 ampere, alternating-current type, arc welder. With the addition of the new model there are now available alternating-current arc welders in capacities of 150, 300, 500, 750 and 1000 amperes. All are complete and self-contained units and need no other accessories, with the exception of welding cable, electrode holder and hand shield. Recently redesigned, the entire line has improved appearance and in internal arrangement and selection of materials each is constructed especially for rough, hard shop usage. One of the new features incorporated in the machines includes a system of three controls or adjustments of the welding current. Through the medium of the first two controls it is possible to obtain twenty-five coarse adjustments. The third control offers a further and finer adjustment of current within any one of the foregoing twenty-five. By means of these three controls an infinite number of settings may be secured.

UNCOVER THE FACTS!



¼ TON LO-HED GIVES FOUNDRY A LIFT

Loads of 500 pounds or under are still being handled by manpower or with inadequate mechanical assistance. In many of these cases a ¼-ton Lo-Hed Hoist would not only increase efficiency but would do the work far better and faster at, of course, a saving.

For example, in one foundry, ¼-ton Lo-Hed Hoists operated by one man are used for pouring along mold conveyors. The operator can devote all his attention to maneuvering the spout into the right position for the important job of pouring. Look into the possibilities of the ¼-ton Lo-Hed and of the other 98 standard Lo-Heds. Send coupon for new Lo-Hed catalog.

AMERICAN ENGINEERING COMPANY
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Gentlemen: Please send me your complete new Lo-Hed catalog including an outline of how to easily and properly select a hoist for any requirement.

Name of Company..... *Your Name*.....

Company Address..... *Your Title*.....

MATERIALS HANDLING

Conveyors Aid Storage In Large Stove Plant

(*Concluded from Page* 48)

journey, or when necessary, act as brake for trucks on the downward movement.

On a mezzanine balcony is located a completely equipped parcel post department. Adjacent to it are located service parts storage shelves. The warehouse is under direct supervision of Philip C. Hurley, the company's shipper, and communication with the latter's office on the ground floor is maintained by a telephone system, with stations located in all parts of the building.

Mr. Hurley has worked out an effective method of stencil storage, which makes it a simple operation for clerks to select the correct stencil. A long storage rack has been divided into compartments of various sizes. For example, one large compartment is devoted to storage of stencils for New York city consignees, being subdivided alphabetically. Other important points of distribution are accorded similar compartments. The remainder of the rack is arranged in smaller compartments alphabetically.

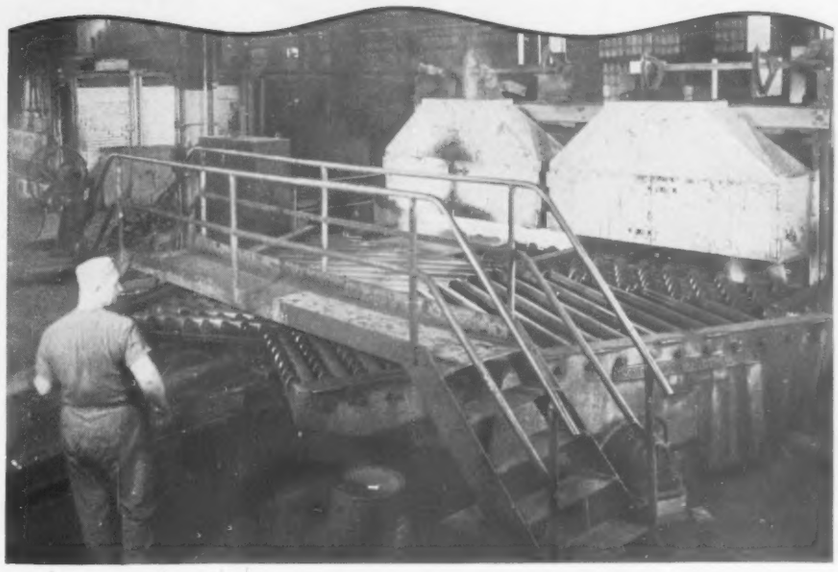
Industrial floor trucks used throughout the warehouse are equipped with two swivel casters and two stationary wheels. All wheels are furnished with molded-on rubber tires. Rubber-tired wheels result in less wear on the warehouse floors and, in addition, are quieter in operation, a distinct asset in providing better working conditions.

◆ ◆ ◆

Issues Lift Truck Patent

UNITED STATES patent office, Washington, recently issued to Jakob Loef, Moosburg, Germany, patent No. 2,079,078 covering a lift truck. Application for this patent originally was made in June, 1932. Features of the truck, on which 25 claims were allowed, include construction in which the lifting mechanism may be adapted readily for operation by hydraulic means, step by step jack means or other devices.

The elevating platform carries a lifting link member adopted to extend into the steering axis and to be operated by a lifting member movable in the steering axis, and actuated in turn by a lifting lever. The lifting portion of the elevating link member is maintained in the steering axis by guide links.



NATURAL LAW IN STEEL PRODUCTION

CONTINUOUS flow principles are the law of gravitation in the steel industry. From the moment that the mechanical blower superseded the bellows, and the rolling mill the forging hammer, and from the moment that the open hearth and continuous charging came into use, all production processes in the steel industry have tended inevitably to the maximum application of the Continuous Flow Principle of Handling Materials.

Mathews engineers realize the problem of handling materials in Steel Mills is bigger than merely conveying larger loads at higher speed. So, from the very first, Mathews equipment has been engineered to facilitate the logical sequence in the operations of the mill, from furnace to storage and shipping.

Mathews engineers are steeped in modern steel mill operation. Their thinking can be likened to that of steel men responsible for the handling of the product.

Processing Equipment installed during 1936-37, embracing the ultimate in design and engineering in the Steel Industry, is illustrated and described in our catalog on Steel Plant Conveyers. Available now.

The leaders in this industry, responsible for 85% of steel production in the United States and Canada, are applying the Continuous Flow Principle of Handling Materials.

MATHEWS CONVEYER COMPANY 142 TENTH STREET ELLWOOD CITY, PENNA.

MATHEWS

CONTINUOUS FLOW PRINCIPLE OF HANDLING MATERIALS

CONVEYERS

RECENT PUBLICATIONS OF MANUFACTURERS

Copies of any of the literature listed below may be obtained by writing directly to the companies involved, or by addressing STEEL, in care of Readers' Service Department, 1213 West Third Street, Cleveland

Microscopes—Bausch & Lomb Optical Co., Rochester, N. Y. Booklet covering monocular and binocular microscopes and accessories.

Air Filter—Northern Blower Co., Cleveland. Bulletin No. 500-2, illustrating and describing new automatic Norblo round type air filters.

Screen and Wire Cloth—International Nickel Co., New York. Catalog covering uses and advantages of Monel and nickel wire cloth.

Electrode Alloys—Electroloy Co., New York. Binder containing specification sheets and price lists of Electroloy alloys for resistance welding electrodes and dies.

Foundry Equipment—Dodge Mfg. Co., Mishawaka, Ind. Folder dealing with Dodge line of power transmission and belt conveyor equipment for foundries.

Fire Extinguishers—Walter Kidde & Co., Bloomfield, N. J. Folder describing standard Kidde fire extinguisher and also anti-freeze fire extinguisher.

Lamp Transformer—Acme Electric & Mfg. Co., Cleveland. Folder describing and giving specifications of Acme mercury vapor lamp transformers.

Flow Meters—Bristol Co., Waterbury, Conn. Catalog containing details of new Bristol electric flow meter, mechanical flow meters and reference section of engineering data.

Corrosion Resisting Equipment—Duriron Co., Dayton, O. General catalog, 1937-38, covering a complete line of equipment made exclusively for handling corrosive solutions.

Lift Truck — Lewis-Shepard Co., 125 Walnut street, Watertown Station, Boston. Circular No. 141, describing new hydraulic tin plate lift truck.

Feeders and Conveyors — Allis-Chalmers Mfg. Co., Milwaukee. Illustrated bulletin 1883, covering recently announced Utah electromagnetic feeders and conveyors.

Welding — Lincoln Electric Co., Cleveland. Application sheet No. 55, series 2, a continuation of "Machine Design — Miscellaneous Machine Parts," dealing with welded design.

Plastic Molding—Chicago Molded Products Corp., 2145 Walnut street, Chicago. Booklet, "The Story of Plastic Molding," contains an article on molds and their uses, explanation of price determining factors, description of molding materials and their properties, hints on design and a listing of parts available from stock molds.

Industrial Heating—R-S Products Corp., Philadelphia. Bulletin 23A, Ryan automatic DI oil burner; bulletin 25, R-S Visco Control; and bulletin 54, R-S furnace pressure control.

Plastic Insulation—Refractory & Insulation Corp., New York. Bulletin on Stic-Tite plastic insulation, covering uses and advantages and showing applications.

Screens—Robins Conveying Belt Co., New York. Bulletin No. 99-A, covering the Robins Eliptex screens, with dimensions and general description.

Air Tools—Madison-Kipp Corp., Madison, Wis. Bulletin AT-2500, covering Kipp air tools as well as fresh oil lubricators, dies, die castings and die casting machines.

Miller-Shapers—Cochrane-Bly Co., Rochester, N. Y. Bulletin picturing and describing new No. 14 single and duplex universal vertical miller-shapers.

Air Cleaners—Donaldson Co., 666 Pelham street, St. Paul. Circular showing two sizes of oil washed air cleaners for tractors, trucks, buses, automobiles or power machinery.

Streamlining—Schaefer Permagrip Enterprises, 20627 Lorain avenue, Cleveland. Booklet covering Schaefer Permagrips, new concealed fasteners for use in streamlined construction.

Marking Devices—M. E. Cunningham Co., 115 East Carson street, Pittsburgh. Folder illustrating and describing safety wedge grip marking devices for stamping numbers and characters on metal.

Special Timers—Automatic Temperature Control Co., 34 East Logan street, Philadelphia. Bulletin G-14, illustrating and explaining uses of automatic timers on special equipment.

Test Indicator—Federal Products Co., 1144 Eddy street, Providence, R. I. Circular showing new type of small test indicator with jeweled bearing and graduated to read 0.0001-inch.

Nut Machines—Waterbury Farrel Foundry & Machine Co., Waterbury, Conn. Catalog No. 884-A, describing automatic nut forming machines. Catalog No. 885-A, describing nut blank reshearing and chamfering machines.

Pipe Unions and Fittings—E. M. Dart Mfg. Co., Providence, R. I. Catalog containing complete data on Dart pipe unions and fittings, with color illustrations, tables, and full information on types, sizes, and prices.

Controllers—Bristol Co., Waterbury, Conn. New 12-page bulletin describing construction of Bristol's recently developed Round Chart potentiometer pyrometers and showing samples of the 12-inch round charts with available ranges.

Hydraulic Presses — Lake Erie Engineering Corp., Buffalo. Bulletin No. 137, dealing with Lake Erie engineering service for design and production of special and standard hydraulic equipment for all purposes, and discussing the forming of duralumin aircraft parts.

Nickel—International Nickel Co., 67 Wall Street, New York City. Section 3, No. 7 of Nickel Cast Iron Data, dealing with heat treatment fundamentals of nickel cast iron, plain cast iron, nickel-chromium cast iron and nickel-chromium-molybdenum cast iron.

Electrical Equipment—Ideal Commutator Dresser Co., Sycamore, Ill. Catalog showing equipment, materials, and methods as well as numerous new items of the company's manufacture in addition to data on electrical and motor maintenance written by expert engineers.

Cable Accessories—Anaconda Wire & Cable Co., New York. Publication No. 371, large 100 page catalog dealing with Anaconda insulated cable accessories, with handy arrangement of data for each. Also contains complete and concise instructions for installing cable accessories.

Gears — Continental Diamond Fibre Co., Newark, Del. Bulletin containing a complete treatment of Celeron Silent Gears, discussing recommended practices for machining, gear information and calculation of horsepower rating. A number of tables include horsepower rating per inch of face.

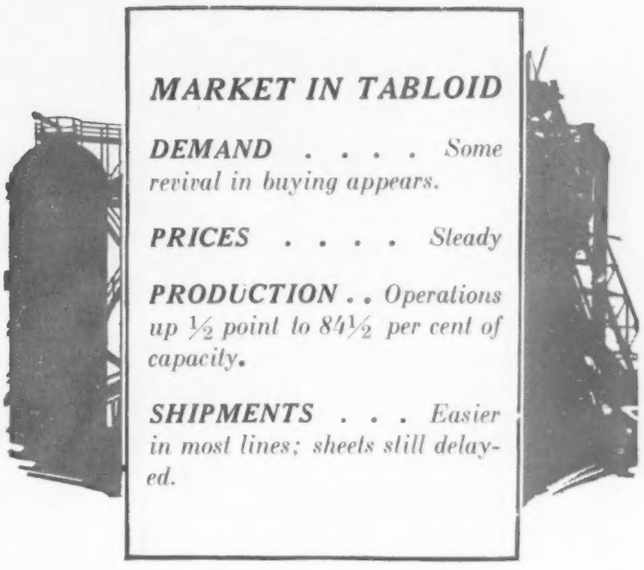
Safety Appliance — Mine Safety Appliances Co., Braddock, Thomas and Meade streets, Pittsburgh. Bulletin devoted to description and illustration of the Mc Caa two hour oxygen breathing apparatus for protection in poisonous and oxygen deficient atmospheres and used by iron and steel manufacturers.

Diesels and Tractors—Caterpillar Tractor Co., Peoria, Ill. Booklet form 4127 entitled "Places for Power Supplied by Caterpillar Diesel Engines", with many illustrations pointing out the use of Caterpillar diesel engines in each case. Also booklet form 4196 on airport construction and maintenance, illustrating applications of Caterpillar equipment.

ADVERTISING PAGES REMOVED

Steelmakers Prepare for Heavy Fall Demand

Pig Iron Rebounds; Ingot Output Up; Pipe Inquiry Grows



MARKET IN TABLOID

DEMAND . . . . *Some revival in buying appears.*

PRICES . . . . *Steady*

PRODUCTION . . *Operations up ½ point to 84½ per cent of capacity.*

SHIPMENTS . . . *Easier in most lines; sheets still delayed.*

ALL signs point to heavy steel buying for the remaining months of 1937 and steelmakers are acting on the general belief that requirements will tax their ability to produce sufficient to meet needs.

Every effort is being made to bring down sufficient iron ore from the Lake Superior fields to tide over the months when navigation is closed. Mills are being operated, for the most part, at practical capacity to clear as much as possible of present bookings before new begin to appear. Stocks of scrap are being replenished, even at rapidly increasing prices.

The national production rate last week stood at 84½ per cent of capacity, up ½ point. Necessity for repairs to open hearths in a number of centers held the rate below the level it would have reached to meet market requirements. No change was made in the rates at Pittsburgh, 83 per cent, eastern Pennsylvania, 71, Youngstown, 80, and Birmingham, 86. Chicago gained 1 point to 86 per cent, Wheeling 1 to 93 and Cleveland 3 to 85. Buffalo declined 2 points to 86, Detroit 2 to 90, Cincinnati 4 to 89, St. Louis 3 to 77 and New England 25 to 65 per cent.

General adoption of revised allowances and quantity deductions on galvanized sheets, announced by a southern producer recently, has been followed by reaffirmation of the base price for fourth quarter. This clears the price situation to the end of the year, with the exception of pig iron.

Revival of pipeline inquiry promises some substantial tonnages of plates for fall rolling. A 250-mile 8-inch line from southern Illinois to Indianapolis will require between 15,000 to 20,000 tons. A line in Louisiana, 141 miles long, of 6 and 8-inch pipe, and a 95-mile gas line in West Virginia are also prospects.

July ingot production totaled 4,556,596 gross tons, an increase of 9 per cent over the June output. In seven months this year production has totaled 33,321,229 tons, compared with 33,886,857 tons in the first seven months of 1929, a difference of only 565,628 tons. Indications are for better performance in the closing months this year than in 1929 and a new record for ingot output seems certain.

Pig iron production in July regained most of the ground lost in June, when labor trouble reduced output. In July production totaled 3,501,359 tons, an increase of 12.4 per cent over the 3,115,302 tons made in June. This is the second highest month this year, being exceeded only by May, with 3,545,180 tons. The daily average in July was 112,947 tons, 8.8 per cent higher than the rate of 103,843 tons in June. Seven months production this year totals 23,271,694 tons, an increase of 43.8 per cent over 16,175,793 tons made in the corresponding period of 1936.

In July 192 stacks were active, largest number since October, 1929, when 203 were operating.

The present rate of ore movement on the Great Lakes makes probable a new season's record, exceeding the 1929 total of 65,204,600 tons. July shipments were 10,704,457 tons, an excess of 596,574 tons over June. For the season to Aug. 1 ore moved to lower lake ports was 34,626,751 tons, compared with 32,910,820 tons in 1929 to the same date.

Steel and iron exports in June, excluding scrap, were 306,237 gross tons, which exceeded by 51 per cent the total in June, 1929. For six months this year the total was 2.3 per cent larger than in the corresponding period of 1929. Scrap exports in June amounted to 520,297 tons. For six months they were 2,172,660 tons, which is about 200,000 tons more than total scrap exports in all of 1936.

Automobile production declined last week to 79,736 units from 86,448 in the preceding week. General Motors made 48,925 cars, Chrysler 21,900 and Ford 650. Production is holding up well in the face of close approach to introduction of new models.

Continued advance in prices of steelmaking scrap, though at a slightly slower rate, brought an increase of 33 cents in the composite for scrap, to $20.33, close to the level of the end of April. Prices at Pittsburgh and in the East continue to advance while little change is noted at Chicago. Scrap advance has raised the iron and steel composite 5 cents to $40.32. The finished steel composite is steady at $61.70.

COMPOSITE MARKET AVERAGES

	Aug. 7	July 31	July 24	One Month Ago July, 1937	Three Months Ago May, 1937	One Year Ago Aug., 1936	Five Years Ago Aug., 1932
Iron and Steel	$40.32	$40.27	$40.11	$40.03	$40.06	$33.88	$28.77
Finished Steel	61.70	61.70	61.70	61.70	61.70	53.40	47.46
Steelworks Scrap ..	20.33	20.00	19.00	18.51	18.49	14.66	6.25

Iron and Steel Composite:—Pig iron, scrap, billets, sheet bars, wire rods, tin plate, wire, sheets, plates, shapes, bars, black pipe, rails, alloy steel, hot strip, and cast iron pipe at representative centers. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Heavy melting steel and compressed sheets.

A COMPARISON OF PRICES

Representative Market Figures for Current Week; Average for Last Month, Three Months and One Year Ago

Finished Material

	Aug. 7, 1937	June 1937	April 1937	July 1936
Steel bars, Pittsburgh	2.45c	2.45c	2.45c	1.95c
Steel bars, Chicago	2.50	2.50	2.50	2.00
Steel bars, Philadelphia	2.74	2.74	2.74	2.26
Iron bars, Terre Haute, Ind	2.35	2.35	2.35	1.85
Shapes, Pittsburgh	2.25	2.25	2.25	1.90
Shapes, Philadelphia	2.45½	2.45½	2.45½	2.11½
Shapes, Chicago	2.30	2.30	2.30	1.95
Tank plates, Pittsburgh	2.25	2.25	2.25	1.90
Tank plates, Philadelphia	2.43½	2.43½	2.43½	2.09
Tank plates, Chicago	2.30	2.30	2.30	1.95
Sheets, No. 10, hot rolled, Pitts.	2.40	2.40	2.40	1.95
Sheets, No. 24, hot ann., Pitts.	3.15	3.15	3.15	2.50
Sheets, No. 24, galv., Pitts.	3.80	3.80	3.80	3.20
Sheets, No. 10, hot rolled, Gary	2.50	2.50	2.50	2.05
Sheets, No. 24, hot anneal., Gary	3.25	3.25	3.25	2.60
Sheets, No. 24, galvan., Gary	3.90	3.90	3.90	3.30
Plain wire, Pittsburgh	2.90	2.90	2.90	2.40
Tin plate, per base box, Pitts.	$5.35	5.35	5.35	5.25
Wire nails, Pittsburgh	2.75	2.75	2.75	2.10

Semifinished Material

Sheet bars, open-hearth, Youngs.	$37.00	$37.00	$37.00	$30.00
Sheet bars, open-hearth, Pitts.	37.00	37.00	37.00	30.00
Billets, open-hearth, Pittsburgh	37.00	37.00	37.00	30.00
Wire rods, No. 5 to ⅝-inch, Pitts.	47.00	47.00	47.00	38.00

Pig Iron

	Aug. 7, 1937	June 1937	April 1937	July 1936
Bessemer, del. Pittsburgh	$25.26	$25.26	$25.26	$20.81
Basic, Valley	23.50	23.50	23.50	19.00
Basic, eastern del. East Pa.	25.26	25.26	25.26	20.81
No. 2 fdy., del. Pittsburgh	25.21	25.21	25.21	20.31
No. 2 fdy., Chicago	24.00	24.00	24.00	19.50
Southern No. 2, Birmingham	20.38	20.38	20.38	15.50
Southern No. 2, del. Cincinnati	23.69	23.69	23.69	19.44
No. 2X eastern, del. Phila.	26.135	26.135	26.135	21.68
Malleable, Valley	24.00	24.00	24.00	19.50
Malleable, Chicago	24.00	24.00	24.00	19.50
Lake Sup., Charcoal, del. Chicago	30.04	30.04	30.04	25.2528
Gray forge, del. Pittsburgh	24.17	24.17	24.17	19.67
Ferromanganese, del. Pittsburgh	107.29	107.29	107.29	80.13

Scrap

Heavy melting steel, Pittsburgh	$21.75	$19.40	$19.55	$16.00
Heavy melt. steel, No. 2, East Pa.	16.75	16.55	16.85	12.80
Heavy melting steel, Chicago	19.75	17.75	17.55	15.45
Rail for rolling, Chicago	21.75	20.30	21.45	16.40
Railroad,steel specialties, Chicago	22.25	20.20	21.35	16.65

Coke

Connellsville, furnace ovens	$4.50	$4.50	$4.85	$3.45
Connellsville, foundry, ovens	5.30	5.30	5.30	4.25
Chicago, by-product foundry, del.	11.00	11.00	11.00	9.75

Steel, Iron, Raw Material, Fuel and Metals Prices

Except when otherwise designated, prices are base, f.o.b. cars.

Sheet Steel

Prices Subject to Quantity Extras and Deductions (Except Galvanized)

Hot Rolled No. 10, 24-48 in.

Pittsburgh	2.40c
Gary	2.50c
Chicago, delivered	2.53c
Detroit, del.	2.60c
New York, del.	2.73c
Philadelphia, del.	2.69c
Birmingham	2.55c
St. Louis, del.	2.63c
Granite City, Ill.	2.60c
Pacific ports, f.o.b. dock	2.95c

Hot Rolled Annealed No. 24

Pittsburgh	3.15c
Gary	3.25c
Chicago, delivered	3.28c
Detroit, delivered	3.35c
New York, del.	3.48c
Philadelphia, del.	3.44c
Birmingham	3.30c
St. Louis, del.	3.38c
Granite City, Ill.	3.35c
Pacific ports, f.o.b. dock	3.80c

Galvanized No. 24

Pittsburgh	3.80c
Gary	3.90c
Chicago, delivered	3.93c
Philadelphia, del.	4.09c
New York, delivered	4.13c
Birmingham	3.95c
St. Louis, del.	4.03c
Granite City, Ill.	4.00c
Pacific ports, f.o.b. dock	4.40c

Tin Mill Black No. 28

Pittsburgh	3.30c
Gary	3.40c
St. Louis, delivered	3.53c
Granite City, Ill.	3.50c

Cold Rolled No. 10

Pittsburgh	3.10c
Gary	3.20c
Detroit, delivered	3.30c
Philadelphia, del.	3.39c
New York, del.	3.43c
St. Louis, del.	3.33c
Granite City, Ill.	3.30c
Pacific ports, f.o.b. dock	3.70c

Cold Rolled No. 20

Pittsburgh	3.55c
Gary	3.65c
Detroit, delivered	3.75c
Philadelphia, del.	3.84c
New York, del.	3.88c
St. Louis	3.78c
Granite City, Ill.	3.75c

Enameling Sheets

Pittsburgh, No. 10	2.90c
Pittsburgh, No. 20	3.50c
Gary, No. 10	3.00c
Gary, No. 20	3.60c
St. Louis, No. 10	3.13c
St. Louis, No. 20	3.73c

Tin and Terne Plate

Gary base, 10 cents higher.

Tin plate, coke, (base box), Pittsburgh	$5.35
Waste-waste, 2.75c; strip	2.50c
Long ternes, No. 24, unassorted, Pitts.	4.10c

Corrosion and Heat-Resistant Alloys

Pittsburgh base, cents per lb.

Chrome-Nickel

	No. 302	No. 304
Bars	24.00	25.00
Plates	27.00	29.00
Sheets	34.00	36.00
Hot strip	21.50	23.50
Cold strip	28.00	30.00

Straight Chromes

	No. 410	No. 430	No. 442	No. 446
Bars	18.50	19.00	22.50	27.50
Plates	21.50	22.00	25.50	30.50
Sheets	26.50	29.00	32.50	36.50
Hot strip	17.00	17.50	23.00	28.00
Cold stp.	22.00	22.50	28.50	36.50

Steel Plate

Pittsburgh	2.25c
New York, del.	2.53c
Philadelphia, del.	2.43½c
Boston, delivered	2.65c
Buffalo, delivered	2.50c
Chicago or Gary	2.30c
Cleveland, del.	2.44½c
Birmingham	2.40c
Coatesville, base	2.35c
Sparrows Pt., base	2.35c
Pacific ports, f.o.b. cars, dock	2.80c
St. Louis, delivered	2.52c

Structural Shapes

Pittsburgh	2.25c
Philadelphia, del.	2.45¼c
New York, del.	2.50¼c
Boston, delivered	2.63½c
Bethlehem	2.35c
Chicago	2.30c
Cleveland, del.	2.45c
Buffalo	2.35c
Gulf Ports	2.65c
Birmingham	2.40c
Pacific ports, f.o.b. cars, dock	2.80c
St. Louis, del.	2.52c

Bars

Soft Steel

(Base, 3 to 25 tons)

Pittsburgh	2.45c
Chicago or Gary	2.50c
Duluth	2.60c
Birmingham	2.60c
Cleveland	2.50c
Buffalo	2.55c
Detroit, delivered	2.60c
Pacific ports, f.o.b. cars, dock	3.00c
Philadelphia, del.	2.74c
Boston, delivered	2.85c
New York, del.	2.78c
Pitts., forg. qual.	2.80c

Rail Steel

To Manufacturing Trade

Pittsburgh	2.30c
Chicago or Gary	2.35c
Moline, Ill.	2.35c
Cleveland	2.35c
Buffalo	2.40c
Birmingham	2.45c

Iron

Terre Haute, Ind.	2.35c
Chicago	2.40c
Philadelphia	2.64c
Pittsburgh, refined	3.50-8.00c

Reinforcing

New billet, straight lengths, quoted by distributors

Pittsburgh	2.55c
Chicago, Gary, Buffalo, Cleve., Birm., Young.	2.60c
Gulf ports	2.65c
Pacific coast ports, f.o.b. car docks	2.95c
Philadelphia, del.	2.84c

Rail steel, straight lengths, quoted by distributors

Pittsburgh	2.40c
Chicago, Buffalo, Cleveland, Birm., Young.	2.45c
Gulf ports	2.80c

Wire Products

Prices apply to straight or mixed carloads; less carloads $5 higher; less carloads fencing $5 over base column.

Base Pitts.-Cleve. 100 lb. keg.

Standard wire nails	$2.75
Cement coated nails	$2.75

(Per pound)

Polished staples	3.45c
Galv. fence staples	3.70c
Barbed wire, galv.	3.40c
Annealed fence wire	3.20c
Galv. fence wire	3.60c
Woven wire fencing (base column, c. l.)	$74.00
Single loop bale ties, (base column, c. l.)	63.00

To Manufacturing Trade

Plain wire, 6-9 ga.	2.90c

Anderson, Ind. (merchant products only) and Chicago up $1; Duluth and Worcester up $2; Birmingham up $3.

Spring wire, Pitts. or Cleveland	3.50c

Do., Chicago up $1, Worc. $2.

Cold-Finished Carbon Bars and Shafting

Pittsburgh	2.90c
Chicago	2.95c
Gary, Ind.	2.95c
Detroit	2.95c
Cleveland	2.95c
Buffalo	3.00c

Subject to quantity deductions and extras. List dated Aug. 26, 1935; revised Oct. 1, 1936.

Alloy Steel Bars (Hot)

(*Base, 3 to 25 tons*)

Pittsburgh, Buffalo, Chicago, Massillon, Canton, Bethlehem	3.00c

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.35	3100	0.70
2100	0.75	3200	1.35
2300	1.55	3300	3.80
2500	2.25	3400	3.20

4100 0.15 to 0.25 Mo. 0.55
4600 0.20 to 0.30 Mo. 1.50-2.00 Ni. 1.10
5100 0.80-1.10 Cr. 0.45
5100 Cr. spring 0.15
6100 bars 1.20
6100 spring 0.85
Cr. N., Van 1.50
Carbon Van. 0.85
9200 spring flats 0.15
9200 spring rounds, squares 0.40

Piling

Pittsburgh	2.60c
Chicago, Buffalo	2.70c

Strip and Hoops

(Base, hot rolled, 25-1ton)
(Base, cold-rolled, 25-3 tons)

Hot strip to 23¾-in. Pittsburgh	2.40c
Chicago or Gary	2.50c
Birmingham base	2.55c
Detroit, del.	2.60c
Philadelphia, del.	2.69c
New York, del.	2.73c
Cooperage hoop, Pittsburgh	2.50c
Chicago	2.60c
Cold strip, 0.25 carbon and under, Pittsburgh, Cleveland	3.20c
Detroit, del.	3.40c
Worcester, Mass.	3.40c

Carbon	Pitts.	Cleve. ter, Mass.	Worces-
0.26—0.50	3.20c	3.40c	
0.51—0.75	4.45c	4.65c	
0.76—1.00	6.30c	6.50c	
Over 1.00	8.50c	8.70c	

Rails, Track Material

(Gross Tons)

Standard rails, mill	$42.50
Relay rails, Pittsburgh, 20—100 lbs.	32.50-35.50
Light rails, billet qual., Pittsburgh, Chicago	$43.00
Do., rerolling quality	42.00
Angle bars, billet, Gary, Pittsburgh, So. Chicago	2.80c
Do., axle steel	3.35c
Spikes, R. R. base	3.15c
Track bolts, base	4.35c
Tie plates, base	$46.00

Base, light rails 25 to 60 lbs.; 20 lbs. up $2; 16 lbs. up $4; 12 lbs. up $8; 8 lbs. up $10. Base railroad spikes 200 kegs or more; base tie plates 20 tons.

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chicago. Discounts to legitimate trade as per Dec. 1, 1932, lists:

Carriage and Machine

½ x 6 and smaller	65-5 off
Do. larger, to 1-in.	60-10 off
Do. 1⅛ and 1¼-in.	60-5 off
Tire bolts	50 off

Plow Bolts

All sizes	65-5 off

Stove Bolts

In packages with nuts attached 72½ off; in packages with nuts separate 72½-5 off; in bulk 80 off on 15,000 of 3-inch and shorter, or 5000 over 3-inch.

Step bolts	60 off
Elevator bolts	50-10-5 off

Nuts

S. A. E. semifinished hex.: ½ to ⅞-inch	60-10 off
Do., 9/16 to 1-inch	60-5 off
Do., over 1-inch	60 off

Hexagon Cap Screws

Milled	50-10 off
Upset, 1-in., smaller	60 off

Square Head Set Screws

Upset, 1-in., smaller	75 off
Headless set screws	75 off

Rivets, Wrought Washers

Structural, Pittsburgh, Cleveland	3.60c
Structural, Chicago	3.70c
⅞-inch and smaller, Pitts., Chi., Cleve.	65-5 off
Wrought washers, Pitts., Chi., Phila. to jobbers and large nut, bolt mfrs.	$5.75 off

Cut Nails

Cut nails, C. L., Pitts. (10% disc. on all extras)	$3.60
Do., less carloads, 5 kegs or more, no discount on any extras	$3.90
Do., under 5 kegs no disc. on any extras	$4.05

Welded Iron, Steel Pipe

Base discounts on steel pipe, Pitts., Lorain, O., to consumers in carloads. Gary, Ind., 2 points less. Chicago, del. 2½ less. Wrought pipe, Pittsburgh.

Butt Weld

Steel

In.	Blk.	Galv.
⅛	59½	49
¼	62½	53
⅜—⅝	64½	55½

Iron

¼	26	8
⅜—1¼	30	14
1½	34	16½
2	33½	16

Lap Weld

Steel

2	57	47½
2½—3	60	50½
3½—6	62	52½
7 and 8	61	50½
9 and 10	60½	50

Iron

2	26½	10
2½—3½	27½	12½
4	29½	16
4½—8	28½	15
9–12	24½	10

Line Pipe

Steel

1 to 3, butt weld	63½
2, lap weld	56
2½ to 3, lap weld	59
3½ to 6, lap weld	61
7 and 8, lap weld	60
10-inch, lap weld	59½
12-inch, lap weld	58½

Butt Weld

Iron

	Blk.	Galv.
¾	25	7
1 and 1¼	29	13
1½	33	15½
2	32½	15

Lap Weld

1½	23½	7
2	25½	9
2½ to 3½	26½	11½
4	28½	15
4½ to 8	27½	14
9 to 12	23½	9

Boiler Tubes

Carloads minimum wall seamless steel boiler tubes, cut lengths 4 to 24 feet, f.o.b. Pittsburgh, base price per 100 feet subject to usual extras.

Lap Weld

Sizes	Steel	Charcoal Iron
1½" OD x 13 Ga.	$10.45	$23.71
1¾" OD x 13 Ga.	11.89	22.93
2" OD x 13 Ga.	13.31	19.35
2" OD x 11 Ga.	15.49	23.36
2¼" OD x 13 Ga.	14.82	21.68
2¼" OD x 11 Ga.	17.38	26.02
2½" OD x 12 Ga.	17.82	26.57
2¾" OD x 12 Ga.	18.86	29.00
3" OD x 12 Ga.	19.73	31.36
3½" OD x 11 Ga.	24.89	39.81
4" OD x 10 Ga.	30.81	49.90
5" OD x 9 Ga.	47.57	73.93
6" OD x 7 Ga.	73.25	.....

Seamless

	Hot Rolled	Cold Drawn
1" OD x 13 Ga.	$ 8.41	$ 9.46
1¼" OD x 13 Ga.	9.96	11.21
1½" OD x 13 Ga.	11.00	12.38
1¾" OD x 13 Ga.	12.51	14.09
2" OD x 13 Ga.	14.02	15.78
2¼" OD x 13 Ga.	15.63	17.60
2¼" OD x 12 Ga.	17.21	19.37
2½" OD x 12 Ga.	18.85	21.22
2¾" OD x 12 Ga.	19.98	22.49
3" OD x 12 Ga.	20.97	23.60
4½" OD x 10 Ga.	40.15	45.19
3½" OD x 11 Ga.	26.47	29.79
4" OD x 10 Ga.	32.83	36.94
5" OD x 9 Ga.	50.38	56.71
6" OD x 7 Ga.	77.35	87.07

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

6-in. & over, Birm.	$46.00-47.00
4-in., Birmingham	49.00-50.00
4-in., Chicago	57.00-58.00
6 to 24-in., Chicago	54.00-55.00
6-in. & over, east fdy.	50.00
Do., 4-in.	53.00

Class A Pipe $3 over Class B
Stnd. fitgs., Birm., base $100.00

Semifinished Steel

Billets and Blooms

4 x 4-*inch base; gross ton*

Pitts., Chi., Cleve., Buffalo, Young., Bham.	$37.00
Philadelphia	42.30
Duluth	39.00

Forging Billets

6 x 6 *to* 9 x 9-*in., base*

Pitts., Chicago, Buffalo	43.00
Forging, Duluth	45.00

Sheet Bars

Pitts., Cleve., Young., Sparrows Point	37.00

Slabs

Pitts., Chicago, Cleveland, Youngstown	37.00

Wire Rods

Pitts., Cleve., No. 5 to ⅜-inch incl.	47.00
Do., over ⅜ to ⅝-inch incl.	52.00
Chicago up $1; Worcester up $2.	

Skelp

Pitts., Chi., Young., Buff., Coatesville, Sparrows Pt.	2.10c

Coke

Price Per Net Ton

Beehive Ovens

Connellsville, fur.	$4.40- 4.60
Connellsville, fdry.	5.25- 5.50
Connell. prem. fdry.	6.00- 6.50
New River fdry.	6.50- 6.75
Wise county fdry.	5.75- 6.00
Wise county fur.	4.75- 5.00

By-Product Foundry

Newark, N. J., del.	10.85-11.30
Chi., ov., outside del.	10.25
Chicago, del.	11.00
Milwaukee, ovens	11.00
New England, del.	12.50
St. Louis, del.	11.00-11.50
Birmingham, ovens	7.25
Indianapolis, del.	10.50
Cincinnati, del.	10.50
Cleveland, del.	11.00
Buffalo, del.	10.50
Detroit, del.	11.10
Philadelphia, del.	10.60

Coke By-Products

Spot, gal. Producers' Plants	
Pure and 90% benzol	16.00c
Toluol	30.00c
Solvent naphtha	30.00c
Industrial xylol	30.00c

Per lb. f.o.b. Frankford and St. Louis

Phenol (200 lb. drums)	14.75c
do. (450 lbs.)	14.00c

Eastern Plants, per lb.

Naphthalene flakes and balls, in bbls. to jobbers	7.25c
Per ton, bulk, f.o.b. oven or port	
Sulphate of ammonia	$28.50

Pig Iron

Delivered prices include switching charges only as noted. No. 2 foundry is 1.75-2.25 sil.; 25c diff. for each 0.25 sil. above 2.25; 50c diff. for each 0.25 below 1.75. Gross tons.

Basing Points:

	No. 2 Fdry.	Malleable	Basic	Bessemer
Bethlehem, Pa.	$25.00	$25.50	$23.50	$26.00
Birdsboro, Pa.	25.00	25.50	24.50	26.00
Birmingham, Ala.‡	20.38	.....	19.38	25.00
Buffalo	24.00	24.50	23.00	25.00
Chicago	24.00	24.00	23.50	24.50
Cleveland	24.00	24.00	23.50	24.50
Detroit	24.00	24.00	23.50	24.50
Duluth	24.50	24.50	.....	25.00
Erie, Pa.	24.00	24.50	23.50	25.00
Everett, Mass.	25.75	26.25	25.25	26.75
Hamilton, O.	24.00	24.00	23.50	.....
Neville Island, Pa.	24.00	24.00	23.50	24.50
Provo, Utah	22.00	.....	.....	.....
Sharpsville, Pa.	24.00	24.00	23.50	24.50
Sparrows Point, Md.	25.00	.....	24.50	.....
Swedeland, Pa.	25.00	25.50	24.50	26.00
Toledo, O.	24.00	24.00	23.50	24.50
Youngstown, O.	24.00	24.00	23.50	24.50

‡Subject to 38 cents deduction for 0.70 per cent phosphorus or higher.

Delivered from Basing Points:

Akron, O., from Cleveland	25.26	25.26	24.76	25.76
Baltimore from Birmingham	25.58	.....	24.46	.....
Boston from Birmingham	26.37	.....	25.87	.....
Boston from Everett, Mass.	26.25	26.75	25.75	27.25
Boston from Buffalo	26.25	26.75	25.75	27.25
Brooklyn, N. Y., from Bethlehem	27.27	27.77	.....	.....
Brooklyn, N. Y., from Bmghm.	27.05	.....	.....	.....
Canton, O., from Cleveland	25.26	25.26	25.76	25.76
Chicago from Birmingham	24.22	.....	24.10	.....
Cincinnati from Hamilton, O.	24.07	25.01	24.51	.....
Cincinnati from Birmingham	23.69	.....	22.69	.....
Cleveland from Birmingham	24.12	.....	23.62	.....
Mansfield, O., from Toledo, O.	25.76	25.76	25.26	25.26
Milwaukee from Chicago	25.00	25.00	24.50	25.00
Muskegon, Mich., from Chicago, Toledo or Detroit	26.90	26.90	26.40	27.40
Newark, N. J., from Birmingham	26.01	.....	.....	.....
Newark, N. J., from Bethlehem	26.39	26.89	.....	.....
Philadelphia from Birmingham	25.38	.....	25.26	.....
Philadelphia from Swedeland, Pa.	25.76	26.26	25.26	.....
Pittsburgh district from Neville Island	Neville, base plus 63c, 76c, and $1.13 switch'g charges			
Saginaw, Mich., from Detroit	26.25	26.25	25.75	25.75
St. Louis, northern	24.50	24.50	24.00	.....
St. Louis from Birmingham	†24.12	.....	23.82	.....
St. Paul from Duluth	25.94	25.94	.....	26.44

†Over 0.70 phos.

Low Phos.

Basing Points: Birdsboro and Steelton, Pa., and Standish, N. Y., $28.50, Phila. base, standard and copper bearing, $29.63.

Gray Forge

Valley furnace $23.50
Pitts. dist. fur. 23.50

Charcoal

Lake Superior fur. $27.00
do., del. Chicago 30.04
Lyles, Tenn. 26.50

Silvery†

Jackson county, O., base: 6-6.50 per cent $28.50; 6.51-7—$29.00; 7-7.50—$29.50; 7.51-8—$30.00; 8-8.50—$30.50; 8.51-9—$31.00; 9-9.50—$31.50; Buffalo $1.25 higher.

Bessemer Ferrosilicon†

Jackson county, O., base: Prices are the same as for silveries, plus $1 a ton.

†The lower all-rail delivered price from Jackson, O., or Buffalo is quoted with freight allowed.

Manganese differentials in silvery iron and ferrosilicon, 2 to 3%, $1 per ton add. Each unit over 3%, add $1 per ton.

Refractories

Per 1000 f.o.b. Works, Net Prices

Fire Clay Brick

Super Quality

Pa., Mo., Ky. $64.60

First Quality

Pa., Ill., Md., Mo., Ky. ... 51.30
Alabama, Georgia 51.30
New Jersey 56.00

Second Quality

Pa., Ill., Ky., Md., Mo. ... 46.55
Georgia, Alabama 41.80
New Jersey 51.00

Ohio

First quality 43.70
Intermediate 39.90
Second quality 35.15

Malleable Bung Brick

All bases $59.85

Silica Brick

Pennsylvania $51.30
Joliet, E. Chicago 59.85
Birmingham, Ala. 51.30

Ladle Brick

(Pa., O., W. Va., Mo.)

Dry press $30.00
Wire cut $28.00

Magnesite

Imported dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags) .. $45.00
Domestic dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags) .. 43.00

Base Brick

Net ton, f.o.b. Baltimore, Plymouth Meeting, Chester, Pa.

Chrome brick $49.00
Chem. bonded chrome .. 49.00
Magnesite brick 69.00
Chem. bonded magnesite 59.00

Fluorspar, 85-5

Washed gravel, duty paid, tide, net ton $24.00
Washed gravel, f.o.b. Ill., Ky., net ton, carloads, all rail $20.00
Do., for barge $21.50

Ferroalloys

Dollars, except Ferrochrome

Ferromanganese, 78-82%, tidewater, duty pd. ... $102.50
Do., Baltimore, base .. 102.50
Do., del. Pittsburgh ... 107.29
Spiegeleisen, 19-21% dom. Palmerton, Pa., spot .. 33.00
Do., New Orleans 33.00
Do., 26-28%, Palmerton 39.00
Ferrosilicon, 50% freight allowed, c.l. 69.50
Do., less carload 77.00
Do., 75 per cent. ... 126-130.00
Spot, $5 a ton higher.
Silicoman., 2½ carbon .. 106.50
2% carbon 111.50; 1%, 121.50
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. del. 10.50
Ferrotungsten, stand., lb. con. del. cars 1.80-1.85
Ferrovanadium, 35 to 40% lb., cont. 2.70-2.90
Ferrotitanium, c. l., prod. plant, frt. all., net ton 142.50
Spot, carlots 145.00
Spot, ton lots 150.00
Ferrophosphorous, per ton, c. l., 17-19% Rockdale, Tenn., basis, 18%, $3 unitage 63.50
Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Anniston, Ala., 24% $3 unitage 80.00
Ferromolybdenum, stand. 55-65%, lb. 0.95
Molybdate, lb. cont. 0.80
†Carloads. Quan. diff. apply

Nonferrous

METAL PRICES OF THE WEEK

Spot unless otherwise specified. Cents per pound

	Copper: Electro, del. Conn.	Copper: Lake, del. Midwest	Copper: Casting, refinery	Straits Tin, New York: Spot	Straits Tin, New York: Futures	Lead: New York	Lead: East St. L.	Zinc: St. L.	Aluminum 99%	Antimony: American Spot, N. Y.	Nickel: Cathodes
Aug. 2	14.00	14.12½	13.75	58.75	58.12½	6.00	5.85	7.00	20.00	15.37½	35.00
Aug. 3	14.00	14.12½	13.75	58.87½	58.15	6.00	5.85	7.00	20.00	15.37½	35.00
Aug. 4	14.00	14.12½	13.75	59.25	58.50	6.25	6.10	7.00	20.00	15.37½	35.00
Aug. 5	14.00	14.12½	13.75	60.37½	59.80	6.50	6.35	7.00	20.00	15.37½	35.00
Aug. 6	14.00	14.12½	13.75	60.37½	59.80	6.50	6.35	7.00-7.25	20.00	15.37½	35.00

MILL PRODUCTS

F.o.b. mill base, cents per lb. except as specified. Copper brass products based on 14.00c Conn. copper

Sheets

Yellow brass (high) 19.75
Copper, hot rolled 21.87½
Lead, cut to jobbers 9.50
Zinc, 100-lb. base .. 12.00-13.00

Tubes

High yellow brass 22.50
Seamless copper 22.62½

Rods

High yellow brass 16.25
Copper, hot rolled 18.62½

Anodes

Copper, untrimmed 19.12½

Wire

Yellow brass (high) 20.00

OLD METALS

Nom. Deal, buying prices

No. 1 Composition Red Brass

New York 8.75-9.00
Cleveland 9.25-9.50
Chicago 9.25-9.50
St. Louis 8.75-9.00

Heavy Copper and Wire

New York, No. 1 .... 11.00-11.50
Cleveland, No. 1 ... 11.00-11.25
*Chicago, No. 1 .... 11.25-11.50
St. Louis, No. 1 .... 10.75-11.00

Composition Brass Borings

New York 8.00-8.25

Light Copper

New York 9.25-9.50
Cleveland 9.00-9.25
*Chicago 9.50-9.75
*St. Louis 9.00-9.50

Light Brass

Cleveland 5.25-5.50
*Chicago 6.00-6.50
*St. Louis 5.25-5.75

Lead

New York 5.00
Cleveland 4.50-4.75
Chicago 5.00-5.12½
St. Louis 4.50-4.75

Zinc

New York 3.00-3.25
Cleveland 3.00-3.25
*St. Louis 3.25-3.50

Aluminum

Borings, Cleveland . 9.75-10.00
Mixed cast, Cleve .. 12.75-13.00
Clips, soft, Cleve .. 14.75-15.00
*Mixed cast, St. L .. 12.25-12.75

SECONDARY METALS

Brass, ingot 85-5-5-5, lcl, 14.00
Stand. No. 12 alum. 18.50-19.00

Warehouse Iron and Steel Prices

Cents per pound for delivery within metropolitan districts of cities specified

STEEL BARS

Baltimore	4.00c
Boston††	4.05c
Buffalo	3.10c
Chattanooga	4.21c
Chicago (j)	3.85c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	3.93½c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.96c-4.11c
New Orleans	4.20c
New York‡ (d)	4.12c
Pitts. (h)	3.80c
Philadelphia	4.00c
Portland	4.50c
San Francisco	4.20c
Seattle	4.45c
St. Louis	4.09c
St. Paul	4.10c-4.25c
Tulsa	3.35c

IRON BARS

Portland	3.50c
Chattanooga	4.21c
Baltimore*	3.25c
Cincinnati	4.05c
New York‡ (d)	3.65c
Philadelphia	4.00c
St. Louis	4.09c
Tulsa	3.35c

REINFORCING BARS

Buffalo	2.60c
Chattanooga	4.21c
Cleveland (c)	2.55c
Cincinnati	3.75c
Houston	3.25c
Los Angeles, c.l.	2.975c
New Orleans*	3.24c
Pitts., plain (h)	2.55c
Pitts., twisted squares (h)	3.95c
San Francisco	2.97½c
Seattle	2.975c
St. Louis	3.99c
Tulsa	3.25c
Young	2.30c-2.60c

SHAPES

Baltimore	3.90c
Boston††	3.92c
Buffalo	3.35c
Chattanooga	4.11c
Chicago	3.75c
Cincinnati	3.95c
Cleveland	3.86c
Detroit	3.95c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.86c
New Orleans	4.10c
New York‡ (d)	3.97c
Philadelphia	3.90c
Pittsburgh (h)	3.70c
Portland (l)	4.25c
San Francisco	4.05c
Seattle (l)	4.25c
St. Louis	3.99c
St. Paul	4.00c
Tulsa	3.60c

PLATES

Baltimore	3.90c
Boston††	3.93c
Buffalo	3.47c
Chattanooga	4.11c
Chicago	3.75c
Cincinnati	3.95c
Cleveland, ¼-in. and over	3.86c
Detroit	3.95c
Detroit, ⅜-in.	4.15c
Houston	3.10c
Los Angeles	4.30c
Milwaukee	3.86c
New Orleans	4.10c
New York‡ (d)	4.00c
Philadelphia	3.90c
Phila. floor	4.95c
Pittsburgh (h)	3.70c
Portland	4.25c
San Francisco	4.05c
Seattle	4.25c
St. Louis	3.99c
St. Paul	4.00c
Tulsa	3.60c

NO. 10 BLUE

Baltimore	3.95c
Boston (g)	4.00c
Buffalo	3.72c
Chattanooga	4.16c
Chicago	3.85c
Cincinnati,	4.00c
Cleveland	3.91c
Det. 8-10 ga.	3.93½c
Houston	3.45c
Los Angeles	4.50c
Milwaukee	3.96c
New Orleans	4.35c
New York‡ (d)	4.07c
Portland	4.25c
Philadelphia	4.00c
Pittsburgh (h)	3.75c
San Francisco	4.30c
Seattle	4.50c
St. Louis	4.39c
St. Paul	4.10c
Tulsa	3.80c

NO. 24 BLACK

Baltimore*†	4.50c
Boston (g)	4.75c
Buffalo	3.35c
Chattanooga*	4.06c
Chicago	4.45c-5.10c
Cincinnati	4.75c
Cleveland	4.66c
Detroit	4.68½c
Los Angeles	5.05c
Milwaukee	4.56c-5.21c
New York‡ (d)	4.82c
Philadelphia	4.65c
Pitts.** (h)	4.75c
Portland	5.15c
Seattle	5.35c
San Francisco	5.15c
St. Louis	4.84c
St. Paul	4.75c
Tulsa	4.85c

NO. 24 GALV. SHEETS

Baltimore*†	4.70c
Buffalo	4.10c
Boston (g)	5.30c
Chattanooga*	4.76c
Chicago (h)	5.10c-5.75c
Cincinnati	5.40c
Cleveland	5.31c
Detroit	5.40c
Houston	4.50c
Los Angeles	5.75c
Milwaukee	5.21c-5.86c
New Orleans*	5.75c
New York‡ (d)	5.47c
Philadelphia	5.30c
Pitts.** (h)	5.40c
Portland	5.90c
San Francisco	5.85c
Seattle	5.90c
St. Louis	5.49c
St. Paul	5.40c
Tulsa	5.20c

BANDS

Baltimore	4.20c
Boston††	4.25c
Buffalo	3.52c
Chattanooga	4.41c
Cincinnati	4.25c
Cleveland	4.16c
Chicago	4.10c
Detroit, ⅜-in. and lighter	4.185c
Houston	3.35c
Los Angeles	4.80c
Milwaukee	4.21c
New Orleans	4.75c
New York‡ (d)	4.32c
Philadelphia	4.10c
Pittsburgh (h)	4.00c
Portland	5.00c
San Francisco	4.80c
Seattle	4.95c
St. Louis	4.34c
St. Paul	4.35c
Tulsa	3.55c

HOOPS

Baltimore	4.45c
Boston††	5.25c
Buffalo	3.52c
Chicago	4.10c
Cincinnati	4.25c
Detroit, No. 14 and lighter	4.185c
Los Angeles	6.55c
Milwaukee	4.21c
New York‡ (d)	4.32c
Philadelphia	4.35c
Pittsburgh (h)	4.50c
Portland	6.50c
San Francisco	6.50c
Seattle	6.30c
St. Louis	4.34c
St. Paul	4.35c

COLD FIN. STEEL

Baltimore (c)	4.50c
Boston*	4.65c
Buffalo (h)	3.70c
Chattanooga*	4.86c
Chicago (h)	4.30c
Cincinnati	4.50c
Cleveland (h)	4.30c
Detroit	4.30c
Los Ang. (f) (d)	6.85c
Milwaukee	4.41c
New Orleans	5.10c
New York‡ (d)	4.57c
Philadelphia	4.53c
Pittsburgh	4.15c
Portland (f) (d)	7.10c
San Fran. (f) (d)	6.80c
Seattle (f) (d)	7.10c
St. Louis	4.54c
St. Paul	4.77c
Tulsa	4.80c

COLD ROLLED STRIP

Boston	3.845c
Buffalo	3.39c
Chicago	3.87c
Cincinnati	3.82c
Cleveland (b)	3.60c
Detroit	3.43c
New York‡ (d)	3.92c
St. Louis	4.54c

TOOL STEELS

(Applying on or east of Mississippi river; west of Mississippi 1c up.)

	Base
High speed	69c
High carbon, Cr.	45c
Oil hardening	26c
Special tool	24c
Extra tool	20c
Regular tool	16c
Water hardening	12½c

Uniform extras apply.

BOLTS AND NUTS

(100 pounds or over)

	Discount
Chicago (a)	55 to 60
Cleveland	60-5-5
Detroit	70-10
Milwaukee	60 to 65
New Orleans	65
Pittsburgh	65-5

(a) Under 100 lbs., 50 off.

(b) Plus straightening, cutting and quantity differentials; (c) Plus mill, size and quantity extras; (d) Quantity base; (e) New mill classif. (f) Rounds only; (g) 50 bundles or over; (h) Outside delivery, 10c less; (i) Under 3 in.; (j) Shapes other than rounds, flats, fillet angles, 0.15c higher.

On plates, shapes, bars, hot strip and blue annealed quantity extras and discounts as follows: Under 100 lbs., add $1.50; 100 to 399 lbs., add 50c; 400 to 3999 lbs., base; 4000 to 9999 lbs., deduct 10c; over 10,000 lbs., deduct 15c. At Cleveland, under 400 lbs., add 50c, with $1 minimum invoice.

‡Domestic steel; *Plus quantity extras; **One to 9 bundles; *† 50 or more bundles; †New extras apply; ††Base 10,000 lbs., extras on less.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Aug. 5

Export Prices f. o. b. Ship at Port of Dispatch—(By Cable or Radio)

	British gross tons U. K. ports £ s d	Continental Channel or North Sea ports, metric tons Quoted in dollars at current value	Continental Channel or North Sea ports, metric tons **Quoted in gold pounds sterling £ s d
PIG IRON			
Foundry, 2.50-3.00 Silicon	$29.88 6 0 0	$27.64	3 9 0
Basic bessemer	19.55 3 18 6*	28.84	3 12 0
Hematite, Phos. .03-.05	36.10 7 5 0	.....	.....
SEMIFINISHED STEEL			
Billets	$39.22 7 17 6	$27.04	3 7 6
Wire rods, No. 5 gage	53.91 10 16 6	56.08	7 0 0
FINISHED STEEL			
Standard rails	$50.42 10 2 6	$48.07	6 0 0
Merchant bars	2.44c 11 0 0	2.17c to 2.25c	6 0 0 to 6 5 0
Structural shapes	2.36c 10 12 6	1.94c	5 7 6
Plates, ¼ in. or 5 mm.	2.57c 11 11 3	2.58c	7 2 6
Sheets, black, 24 gage or 0.5 mm	3.33c 15 0 0	3.16c	8 15 0
Sheets, gal., 24 gage, corr.	4.16c 18 15 0	4.16c	11 10 0
Bands and strips	3.05c 13 15 0	2.35c	6 10 0
Plain wire, base	3.22c 14 10 0	2.53c	7 0 0
Galvanized wire, base	3.77c 17 0 0	3.17c	8 15 0
Wire nails, base	3.10c 14 0 0	2.90c	8 0 0
Tin plate, box 108 lbs.	$ 6.22 1 5 0	.....	.....

British ferromanganese $102.50 delivered Atlantic seaboard, duty-paid.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$25.15 5 1 0(a)	$17.32	462	$27.80	825	$25.38	63
Basic bessemer pig iron	24.90 5 0 0(a)	10.31	275	14.66	435	27.99 (b)	69.50
Furnace coke	8.72 1 15 0	5.92	158	6.23	185	7.65	19
Billets	39.22 7 17 6	24.96	655	32.25	960	38.87	96.50
Standard rails	2.25c 10 2 6	1.66c	975	1.80c	1,200	2.38c	132
Merchant bars	2.54c 11 9 0	1.50c	885	1.65c	1,100	1.98c	110
Structural shapes	2.45c 11 0 6	1.46c	860	1.65c	1,100	1.93c	107
Plates, ¼-in. or 5 mm.	2.60c 11 14 3	1.88c	1,105	2.06c	1,375	2.29c	127
Sheets, black	3.50c 15 15 0§	2.47c	1,450‡	2.36c	1,575‡	2.59c	144
Sheets, galv., corr., 24 ga. or 0.5 mm	4.33c 19 10 0	3.66c	2,150	2.85c	1,900	6.66c	370
Plain wire	3.22c 14 10 0	2.31c	1,360	2.48c	1,650	3.11c	173
Bands and strips	2.71c 12 4 0	1.70c	1,000	2.33c	1,550	2.29c	127

*Basic. †British ship-plates. Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continent usually for basic-bessemer steel a del. Middlesbrough. b hemetite. ††Close annealed.

**Gold pound sterling carries a premium of 64.50 per cent over paper sterling.

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated; † indicates brokers prices

HEAVY MELTING STEEL

Birmingham†, No. 1	15.00-16.00
Birmingham†, No. 2	14.00-15.00
Bos. dock No. 1, exp.	17.00
N. Eng. del. No. 1	15.25-15.75
Buffalo, No. 1	19.50-20.00
Buffalo, No. 2	17.50-18.00
Chicago, No. 1	19.50-20.00
Cleveland, No. 1	19.00-19.50
Cleveland, No. 2	17.50-18.00
Detroit, No. 1	17.00-17.50
Eastern Pa., No. 1	19.50-20.00
Eastern Pa., No. 2	18.00
Federal, Ill.	15.25-15.75
Granite City, R.R.	17.00-17.50
Granite City, No. 2	15.25-15.75
New York, No. 1	†16.50-17.00
N.Y. dock, No. 1 exp.	16.00-16.50
Pitts., No. 1 (R. R.)	22.75-23.25
Pitts., No. 1 (dlr.)	21.50-22.00
Pittsburgh, No. 2	18.50-19.00
St. Louis, R.R.	16.50-17.00
St. Louis, No. 2	15.25-15.75
Toronto, dlrs. No. 1	11.00-12.00
Toronto, No. 2	10.00-11.00
Valleys, No. 1	21.00-22.00

COMPRESSED SHEETS

Buffalo, dealers	17.50-18.00
Chicago, factory	19.00-19.50
Chicago, dealer	18.00-18.50
Cleveland	18.50-19.00
Detroit	18.00-18.50
E. Pa., new mat.	19.50-20.00
E. Pa., old mat.	15.50-16.00
Pittsburgh	21.50-22.00
St. Louis	15.00-15.50
Valleys	20.50-21.00

BUNDLED SHEETS

Buffalo	13.50-14.00
Cincinnati, del.	14.50-15.00
Cleveland	14.00-14.50
Pittsburgh	19.00-19.50
St. Louis	14.00-14.50
Toronto, dealers	8.00

SHEET CLIPPINGS, LOOSE

Chicago	13.50-14.00
Cincinnati	13.50-14.00
Detroit	13.25-13.75
St. Louis	12.50-13.00

STEEL RAILS, SHORT

Birmingham	17.00-18.00
Buffalo	23.50-24.50
Chicago (3 ft.)	21.50-22.00
Chicago (2 ft.)	23.00-23.50
Cincinnati, del.	23.00-23.50
Detroit	22.50-23.00
Pitts., 3 ft. and less	26.00-26.50
St. Louis, 2 ft. & less	20.00-20.50

STEEL RAILS, SCRAP

Boston district	†14.50-15.00
Buffalo	19.50-20.00
Chicago	19.50-20.00
Cleveland	21.00-21.50
Pittsburgh	22.50-23.00
St. Louis	18.50-19.00

STOVE PLATE

Birmingham	10.00-10.50
Boston district	†11.50-12.00
Buffalo	15.00-16.00
Chicago	11.00-11.50
Cincinnati, dealers	12.00-12.50
Detroit, net	12.25-12.75
Eastern Pa.	16.50-17.00
New York fdry	†12.25-12.75
St. Louis	12.25-12.75
Toronto, deal'rs, net	9.50-10.00

SPRINGS

Buffalo	22.00-22.50
Chicago, coil	24.50-25.00
Chicago, leaf	22.50-23.00
Eastern Pa.	24.00-24.50
Pittsburgh	26.00-26.50
St. Louis	21.50-22.00

ANGLE BARS—STEEL

Chicago	21.50-22.00
St. Louis	19.00-19.50

RAILROAD SPECIALTIES

Chicago	22.00-22.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	23.00-23.50
Cleveland, billet, bloom crops	24.50-25.00
Eastern Pa., crops	24.00-24.50
Pittsburgh, billet, bloom crops	26.50-27.00
Pittsburgh, sheet bar crops	25.00-25.50

FROGS, SWITCHES

Chicago	19.50-20.00
St. Louis, cut	18.50-19.00

SHOVELING STEEL

Federal, Ill.	15.25-15.75
Granite City, Ill.	15.25-15.75
Toronto, dealers	9.00- 9.50

RAILROAD WROUGHT

Birmingham	13.50-14.00
Boston district	†10.00-10.25
Buffalo, No. 1	17.50-18.00
Buffalo, No. 2	19.50-20.00
Chicago, No. 1 net	16.00-16.50
Cincinnati, No. 2	17.50-18.00
Eastern Pa., No. 1	19.50-20.00
St. Louis, No. 1	15.00-15.50
St. Louis, No. 2	17.00-17.50
Toronto, No. 1 dlr.	15.00

SPECIFICATION PIPF

Eastern Pa.	16.50-17.00
New York	†12.50-13.00

BUSHELING

Buffalo, No. 1	17.50-18.00
Chicago, No. 1	17.50-18.00
Cincin., No. 1, deal.	15.50-16.00
Cincinnati, No. 2	9.50-10.00
Cleveland, No. 2	13.50-14.00
Detroit, No. 1 new	16.50-17.00
Valleys, new, No. 1	19.50-20.00
Toronto, dealers	9.00

MACHINE TURNINGS

Birmingham	6.00- 7.00
Buffalo	12.00-12.50
Chicago	10.50-11.00
Cincinnati, dealers	11.50-12.00
Cleveland	13.00-13.50
Detroit	13.00-13.50
Eastern Pa.	14.00-14.50
New York	†10.00-10.50
Pittsburgh	15.00-15.50
St. Louis	9.50-10.00
Toronto, dealers	8.00- 8.50
Valleys	15.50-16.00

BORINGS AND TURNINGS

For Blast Furnace Use

Boston district	†9.25- 9.50
Buffalo	12.75-13.25
Cincinnati, dealers	11.00-11.50
Cleveland	13.50-14.00
Detroit	13.50-14.00
Eastern Pa.	13.00-13.50
New York	†9.50- 9.75
Pittsburgh	15.00-15.50
Toronto, dealers	8.00- 8.50

CAST IRON BORINGS

Birmingham	8.00- 8.50
Boston dist. chem.	†10.00-10.25
Bos. dist. for mills	†9.25- 9.75
Buffalo	12.75-13.25
Chicago	12.00-12.50
Cincinnati, dealers	11.00-11.50
Cleveland	13.50-14.00
Detroit	13.50-14.00
E. Pa., chemical	14.50-15.00
New York	†9.50- 9.75
St. Louis	8.00- 8.50
Toronto, dealers	9.00

PIPE AND FLUES

Cincinnati, dealers	13.00-13.50
Chicago, net	13.50-14.00

RAILROAD GRATE BARS

Buffalo	14.00-14.50
Chicago, net	12.50-13.00
Cincinnati	12.00-12.50
Eastern Pa.	16.50-17.00
New York	†12.00-12.50
St. Louis	12.00-12.50

FORGE FLASHINGS

Boston district	†12.00-12.25
Buffalo	17.50-18.00
Cleveland	17.50-18.00
Detroit	15.00-15.50
Pittsburgh	18.25-18.75

FORGE SCRAP

Boston district	†9.50-10.00
Chicago, heavy	21.50-22.00
St. Louis	17.00-17.50

ARCH BARS, TRANSOMS

St. Louis	19.00-19.50

AXLE TURNINGS

Boston district	†11.00-11.50
Buffalo	16.00-16.50
Chicago, elec. fur.	17.50-18.00
Eastern Pa.	17.00-17.50
St. Louis	13.50-14.00
Toronto	9.50

STEEL CAR AXLES

Birmingham	19.00-20.00
Buffalo	22.50-23.00
Boston district	†20.00
Chicago, net	25.50-26.00
Eastern Pa.	25.00-26.00
St. Louis	23.50-24.00

SHAFTING

Boston district	†18.75-19.00
New York	†19.50-20.00
Eastern Pa.	24.50
St. Louis	18.50-19.00

CAR WHEELS

Birmingham	18.00-19.00
Boston dist., iron	†15.00-15.25
Buffalo, iron	19.00-19.50
Buffalo, steel	23.00-23.50
Chicago, iron	20.50-21.00
Chicago, rolled steel	22.00-22.50
Cincinnati, iron	19.50-20.00
Eastern Pa., iron	20.50-21.00
Eastern Pa., steel	24.50-25.00
Pittsburgh, iron	21.00-21.50
Pittsburgh, steel	26.00-26.50
St. Louis, iron	19.00-19.50
St. Louis, steel	20.00-20.50

NO. 1 CAST SCRAP

Birmingham	15.50-16.00
Boston, No. 1 mach.	†15.00-15.50
N. Eng. del. No. 2	15.50-16.00
N. Eng. del. textile	18.50
Buffalo, cupola	18.00-18.50
Buffalo, mach.	19.00-20.00
Chicago, agri. net	14.00-14.50
Chicago, auto	15.00-15.50
Chicago, mach. net	16.50-17.00
Chicago, railr'd net	15.00-15.50
Cincin., mach. cup.	17.00-17.50
Cleveland, mach.	19.00-19.50
Eastern Pa., cupola	21.00-21.50
E. Pa., mixed yard	18.00
Pittsburgh, cupola	20.25-20.75
San Francisco, del.	13.50-14.00
Seattle	12.00-13.00
St. Louis, No. 1	14.50-15.00
St. L., No. 1, mach.	15.00-15.50
Toronto, No. 1, mach., net	16.00-17.00

HEAVY CAST

Boston dist. break.	†14.75-15.00
N. Eng. del.	15.00-15.25
Buffalo, break.	15.00-15.50
Cleveland, break.	13.50-14.00
Detroit, break.	14.50-15.00
Detroit, auto net	16.00-16.50
Eastern Pa.	20.00-20.50
New York, break.	†15.75-16.25
Pittsburgh	17.00-17.50

MALLEABLE

Birmingham, R. R.	12.50-13.50
New England, del.	20.00
Buffalo	20.00-21.00
Chicago, R. R.	21.50-22.00
Cincin., agri. del.	17.50-18.00
Cleveland, rail	21.50-22.00
Detroit, auto	17.00-17.50
Eastern Pa., R. R.	19.00-20.00
Pittsburgh, rail	21.00-21.50
St. Louis, R. R.	19.50-20.00

RAILS FOR ROLLING

5 feet and over

Birmingham	19.00-20.00
Boston	†17.50-18.00
Buffalo	21.50-22.50
Chicago	21.50-22.00
Eastern Pa., R. R.	21.00-21.50
New York	†17.00-17.50
St. Louis	19.00-19.50

LOCOMOTIVE TIRES

Chicago (cut)	22.50-23.00
St. Louis, No. 1	19.50-20.00

LOW PHOS. PUNCHINGS

Buffalo	22.50-23.00
Chicago	22.00-22.50
Eastern Pa.	24.00-24.50
Pittsburgh (heavy)	23.50-24.00
Pittsburgh (light)	23.00-23.50

Iron Ore

Lake Superior Ore

Gross ton, 51½%

Lower Lake Ports

Old range bessemer	$5.25
Mesabi nonbess.	4.95
High phosphorus	4.85
Mesabi bessemer	5.10
Old range nonbess.	5.10

Eastern Local Ore

Cents, unit, del. E. Pa.

Foundry and basic 56.63% con.	9.00-10.00
Cop.-free low phos. 58-60%	nominal

Foreign Ore

Cents per unit, f.a.s. Atlantic	
Foreign manganiferous ore, 45.55% iron, 6-10% man.	*17.00
No. Afr. low phos.	17.50
Swedish low phos.	nominal
Spanish No. Africa basic, 50 to 60%	*16.00
Tungsten, Nov.-Dec. sh. ton, unit, duty pd. $23.00 to $24.00; spot non.	
N. F., fdy., 55%	7.00
Chrome ore, 48% gross ton, c.i.f.	$25.50-26.50

*Nominal asking price for spot.

Manganese Ore

(Nominal)

Prices not including duty, cents per unit cargo lots.

Caucasian, 50-52%	non. .52.00 to 53.00
So. African, 50-52%	non. 52.00 to 53.00
Indian, 50-52%	Nominal

Sheets

Sheet Prices, Page 78

Pittsburgh—Mill delivery promises on sheets have shortened further, even the most heavily booked producers now offering hot-rolled in about ten weeks, galvanized and light hot-rolled somewhat more extended, and cold-reduced in around five or six weeks. Highlight of the week was the action of leading producers in notifying district offices that the southern plan on galvanized would be followed in the north, with base prices reaffirmed for fourth quarter. The functional allowance to jobbers and dealers on 26, 28 and 29 gage roofing sheets and siding will be reduced to 10 cents per 100 pounds from 20 cents. No functional allowance will be granted jobbers and dealers on flat sheets in any gage or on galvanized roofing and siding heavier than 26 gage. The quantity allowance on 26, 28 and 29 gage galvanized roofing and siding, 80,000 pounds or more, for shipment at one time to one destination, will be increased from 10 cents per 100 pounds to 15 cents. This applies to consumers as well as jobbers and dealers. There will be some adjustment of quantity extras on flat galvanized sheets, roofing and siding. An advance of 10 cents per 100 pounds will be made in the LCL extras applicable to galvanized flat sheets. Functional allowances are provided to qualified manufacturing roofing distributors on flat galvanized sheets for manufacture into formed roofing.

Cleveland—Sheet mills continue a high rate of operations, working against backlogs still heavy despite recent lighter buying. Some sellers noted an upturn in new business last week. Automobile partsmakers are placing some orders for 1938 models, but demands from this source will not be great until production of new lines increases. Most other users are taking considerable tonnage for this period. Deliveries remain extended, ranging around eight to ten weeks for many finishes. Some grades can be obtained quicker; others require as much as 22 weeks.

Chicago—Sheet business still is restricted by seasonal quiet in automotive demand, but with heavier buying for 1938 models in early prospect, a slowing down in the recent rate of shrinkage in backlogs is looked for. Unfilled orders are materially smaller than 60 days ago but producers still are able to continue near-capacity schedules. Prices are steady.

Boston—Except for slightly heavier buying of blue annealed by small tank builders and some interest in early last quarter requirements for some finishes, sheet specifications are light. Deliveries to jobbers have improved materially in some instances. Range and refrigerator builders' specifications are well maintained. In general miscellaneous demand is lower.

New York—A paradoxical situation prevails with respect to hot and cold sheet deliveries, with the more extended shipments in hot sheets being in the lighter gages and in the cold-reduced sheets in the heavier gages. At least that is the situation with some leading producers, who, however, expect deliveries on the lighter gages of cold sheets to jump once the automobile industry becomes more active.

Philadelphia—Some automotive buying of cold-rolled grades for 1938 model requirements is noted and additional purchases are said to be nearly ready to close. Eastern sheetmakers still have fairly good

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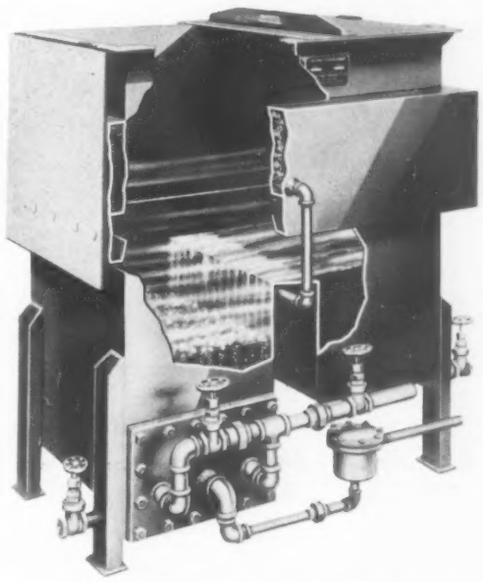

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backlogs, with deliveries of hot-rolled grades running four to six weeks, hot rolled annealed five to seven weeks and galvanized three to four weeks. Jobbers are ordering freely to prepare for fall requirements.

Buffalo—Backlogs of local sheet mills are understood to be falling considerably but so far little change is apparent in production schedules. It is thought August may produce the first major reaction in sheet production this district has seen since the new Bethlehem strip mill went into production although there is a possibility orders for quick shipment may precent this change in events.

Cincinnati—Sheet mills continue near capacity, cutting heavily into backlogs. Part of the production will be diverted toward mill stocks, depleted during previous months. New bookings last week and the preceding week were about 50 per cent of capacity, at the leading interest, but the undertone was aided by more liberal releases.

St. Louis—Extension of current sheet prices into fourth quarter has had no noticeable reaction. Demand continues to taper and no revival in ordering is looked for before September. Backlogs have been reduced and pressure for delivery is also less keen.

Birmingham—Demand for sheets continues strong with business from drum manufacturers exerting a decidedly stabilizing influence on production. Mill backlogs remain practically unchanged.

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Strip

Strip Prices, Page 79

Pittsburgh—Incoming tonnage is somewhat more satisfactory in hot and cold-rolled strip steel, the main improvement having been shown by automotive partsmakers. Total new business in this district since Aug. 1 has been ahead of the corresponding period of May, which has been generally regarded as the slimmest period of the year from the standpoint of buying. Among miscellaneous consumers the electrical fixture business appears to be going well. Deliveries are around two weeks on hot-rolled and four on cold-rolled, although in the latter slightly earlier shipments might be obtained through hitting the schedules at the right time.

Cleveland—Specifications and buying of steel strip remain generally light, despite a slight increase last week. Miscellaneous consumers are taking a fair tonnage for this season and producers are increasingly optimistic over prospects. Heavier specifications will accompany full production of new model automobiles. Mills remain active, backlogs are being lowered and deliveries are improving.

Chicago—Strip demand continues relatively slow but producers anticipate that the low point in summer buying is at hand. Backlogs are materially lighter than 60 days ago. Deliveries ranging from 10 days to three or four weeks now are available. Automotive buying for 1938 models has yet to reach sizeable proportions but heavier sales are looked for within the next 30 days.

Boston—Continuance of current light buying of cold strip is expected during the next two or three weeks. While there has been no recent slump in specifications, incoming business is much smaller than earlier in the quarter. Operations are more irregular as backlogs have been lowered with production about in line with consumer operations, some units still being pushed for deliveries while others are doing little. The trend of buying and policy of some users in dipping into stocks, indicate renewal of forward covering early next month.

New York—The lull in buying of narrow cold strip continues with little change in new volume, the range of specifications being spotty, generally for immediate delivery for fill-in needs. Users are working stocks to a lower point and shipments are down. Deliveries on most items are normal with backlogs smaller. There has been a minimum of forward buying, but sellers look for an early improvement in orders, notably from the automotive trade.

Philadelphia—The radio trade is well launched on new model program but otherwise little improvement in demand is noted. Stovemakers are slow to get under way.

Plates

Plate Prices, Page 78

New York—Plate producers are still having considerable difficulty in reducing backlogs of wide and heavy gage plates; however, their position on other sizes is steadily improving and deliveries within two or three weeks are available. On wide and heavy gage sheets little can be done under six or seven weeks with some eastern sellers unable to accept such tonnage under 10 or 12 weeks. Shipments of certain of the Pittsburgh producers are even more extended, according to schedules being quoted here. Bids will again be asked Aug. 19 on the $1,000,000 fire boat for the city of New York. As noted previously no bids were submitted when first requested, due to labor difficulties at the local yards. Approximately 1250 tons of plates will be required for large sized pipe to be fabricated by Alco Products Inc. for the World's Fair development in the burrough of Queens. Miscellaneous plate buying is light.

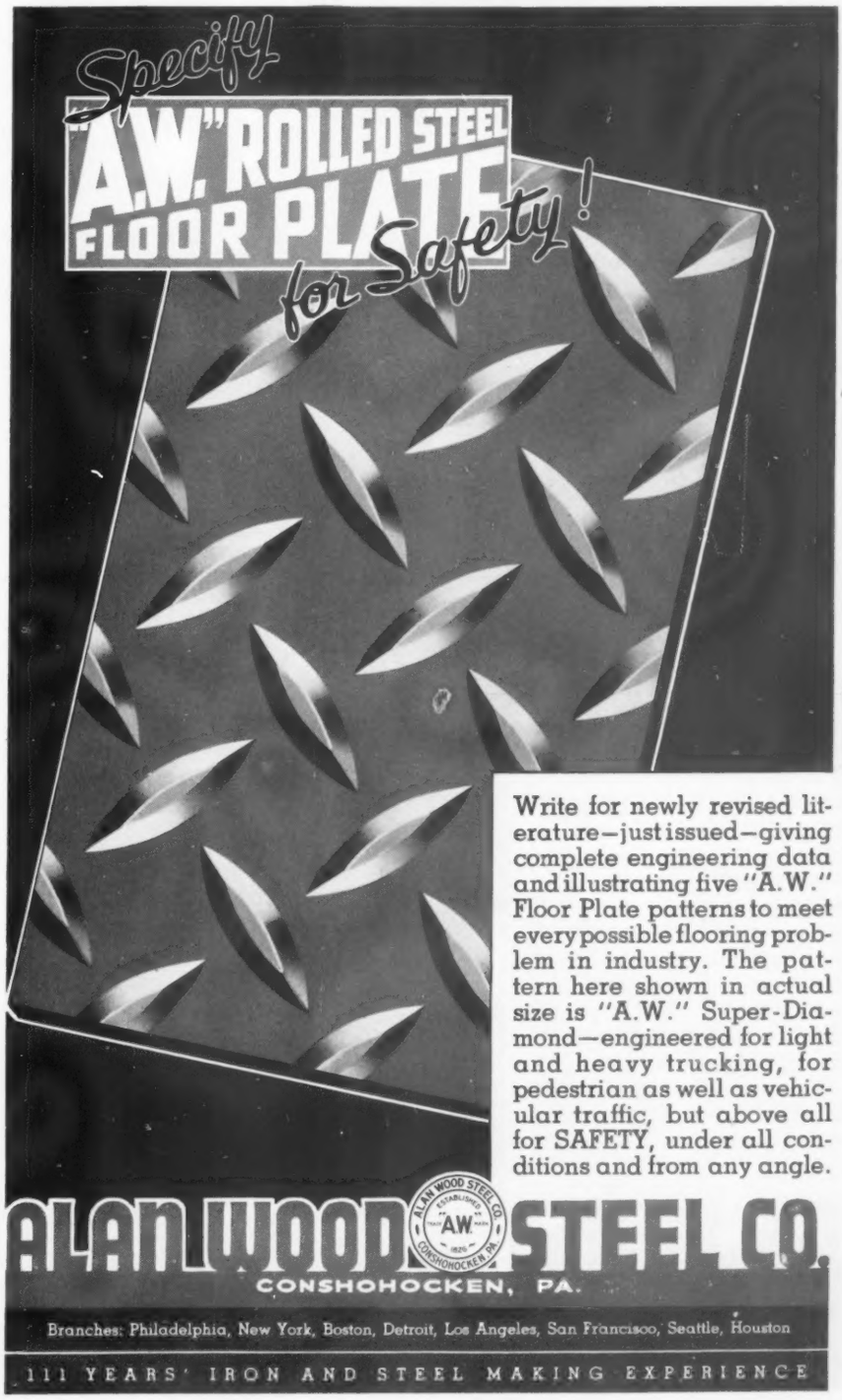
Boston—Improved delivery on a wider range of specifications, resulting in larger stocks at consumer plants, has delayed buying. Some fair volume on small tank heads has been placed, however. Chicago Bridge & Iron Works is low on a 100,000-gallon elevated tank, Westfield, Mass., state hospital. With most shipyards well filled with work, several are soon to be in a position to take on more navy tonnage, including four destroyers on which bids are in.

Bath Iron Works, Bath, Me., is low on base bids for four destroyers, closing Aug. 4 at Washington. These ships take approximately 4000 tons of steel, including 2600 tons of hull plates. On some alternate bids, involving the number and delivery, Bethlehem Shipbuilding Corp., Quincy, Mass., appears low. On a basis of bids all, or at least most of this tonnage, will be placed with New England yards.

Pittsburgh—Inquiries for plates are heavier and with railroad equipment buying increasing the outlook over the immediate future appears bright. While some progress has been made in reducing backlogs, most producers still have a full month's activity ahead.

Cleveland—New business is limited to miscellaneous tonnages for small structural projects and tank and boiler requirements. One major project is for 600 tons of 48-inch steel pipe for Industrial Rayon Corp. at Painesville, O. Mills continue high rate of operations and backlogs are being reduced. Deliveries range around ten to 12 weeks, and in some instances, better.

Chicago—While new plate business is restricted shipments against contracts are heavy. Substantial backlogs of producers will prevent any early recession in production and deliveries on new business extended as much as 12 weeks in some instances. Tank builders con-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tinue busy. A pipe line for Shell Petroleum Corp., involving 250 miles of 8-inch welded pipe, may take 15,000 to 20,000 tons of plates. A 68-mile line also is pending in Texas for the Duval Pipeline Co., Pittsburgh.

Philadelphia—Eastern rollers of floor plates are following the $6 per ton reduction inaugurated by a Chicago mill, bringing the Coatesville, Pa., base to 3.60c. Plate business in general shows further tapering with lighter gages available in two to three weeks and heavier in four to five weeks. Specifications now are at about 50 per cent of shipments. Some ship plate tonnage is still on books. Plates for naval vessels on which bids have been taken are not expected to be placed until early next year.

Birmingham—Despite a heavy backlog on plates and continued capacity operations to fill a sustained demand caused by numerous miscellaneous jobs, mills here report some increase, over the past week in demand.

Los Angeles—General Petroleum Corp. has ordered a steel oil barge from the Los Angeles Shipbuilding & Drydock Corp., at $100,000, the first large shipbuilding project at this yard since postwar days.

Seattle—Proposed projects are slow in developing and no large tonnages are up for figures. Bellingham, Wash., plans a major water pipe line development but bids have not been called. Local plants have a fair amount of work in hand, all small tonnages. Pasco, Wash., will ask bids on six steel water tanks, of which only one is to be erected at once, capacity 300,000 to 500,000 gallons each. Pittsburgh-Des Moines Steel Co. bid $29,400 for a 400,000 gallon unit, not including foundation.

Plate Contracts Placed

1250 tons, 36 and 48-inch steel pipe for the World's Fair development in Queens, New York, to Alco Products Inc., New York.

900 tons, shield, Queens tunnel, New York, to Alco Products Co., Dunkirk, N. Y.

135 tons, elevated water tank, Oberlin, O., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

125 tons, 57½-foot spherical gas-holder, Cleveland, to Chicago Bridge & Iron Works, Chicago.

115 tons, 1,000,000-gallon standpipe, Ithaca, N. Y., to Chicago Bridge & Iron Works, Chicago.

Unstated tonnage, 100,000-gallon elevated tank, state sanatorium, Westfield, Mass., to Chicago Bridge & Iron Works, Chicago; bids July 26, department of health, Boston, Edward Wright, sanitary engineer.

Unstated tonnage, 100,000-gallon tank on 125-foot tower, Pilot Mountain, N. C., to R. D. Cole Mfg. Co., Newman, Ga., $9929, bids July 2.

Plate Contracts Pending

16,000 tons, principally plates, steamer, United States lines, bids Sept. 15 by Maritime commission, Washington.

500 tons, tanks, New Iberia, La.

Ferroalloys

Ferroalloy Prices, Page 80

New York—Ferromanganese shipments are expanding slowly as stocks laid in in June against old contracts are becoming used up. Meanwhile, the price is unchanged at $102.50, duty paid, Atlantic ports, with little likelihood of any immediate change, according to most trade interests. However, there was a mid-period increase in the second quarter and with manganese ore prices continuing to tend steadily upward, there is a chance that higher prices may go into effect on new business before the end of September.

Domestic spiegeleisen, 19 to 21 per cent, continues steady at $33, Palmerton, Pa., and 26 to 28 per cent at $39. The movement of this material is also expanding modestly.

Behind the Scenes with STEEL

More Gumshoeing

NEATEST bit of scientific sleuthing we've seen for several eons was the job done by the national bureau of standards in discovering the cause of the failure of heat treated wire in the now notorious Mt. Hope suspension bridge case. After a session of philovancing, the boys built themselves a testing machine which was practically a duplicate of the bridge and got to work, hoping to find a clue. After making the wires pop right and left, they found the real cause —constant bending at the anchorage shoe, which was fatal to the stiff heat treated wire. For this noble work, the boys, Swanger and Wohlgemuth of the bureau, were each given a real gold medal by the A.S.T.M.

* * *

Quenched

ACCORDING to an old stone found in ancient Tyre, says the Great Lakes Forge Co., proper method for Damascus blades requiries an Ethiope of fair frame, bound down with shoulders up upon the block of the God Bal-Bal, his head and neck projecting over and beyond the block. Then the master workman, having cold hammered the blade to a smooth and thin edge, thrust it into the fire and recited the prayer to the God Bal-Bal until the steel be the color of the rising sun when he comes up over the desert toward the east. At this point he passes the blade from the heel to the point six times through the fleshy part of the slave's back until it turns royal purple. Then with one stroke of the right arm the workman severs the head of the slave from his body, and if the blade shows no nick nor crack and it may be bent round the body of a man and break not, it is acceptable as a perfect weapon, sacred to the service of the God Bal-Bal and the owner may keep it in a scabbard of asses' skin. To all this Great Lakes Forge says merely, "Tough on the quenching medium". Sounds to us like this guy Bal-Bal was somewhat of an ancient Mussolini, only on a smaller scale—he got rid of the "Ethiopes" only one at a time.

* * *

Sammich

OUR good friends at the United States Rubber Co., have given us further evidence of the age of mechanization. This time they have presented us with a treatise on a shear sandwich. Psychologically perfect, they placed the delicious morsel on our desk before lunch. The headline grabbed our eye, and with gastric anticipation we sat down to read it. The sandwich consists of two fresh crisp slices of steel encompassing a generous block of live rubber. Inside dope for all you gourmets — the secret of fine construction of shear sandwiches consists in getting a fine bond between the rubber and steel to prevent side slip. Also being premiered by the company is a club sandwich consisting of three fresh crisp slices of steel and two generous portions of live rubber, strategically placed. These morsels are so perfectly located in relation to each other that one may masticate them even with false teeth with no apparent damage to the sandwich. It is claimed that when heavy machines have these delicacies under their belts, and legs, too, for that matter, they murmur silently to themselves in shear joy.

* * *

Add Ads

THIS week's book contains these gems: The snake, worthy of any 'leventh hour sightseer, on page 44; echoes of Minsky's on page 49; preview of fall, football and cheerleaders on page 43.

—SHRDLU

Bars

Bar Prices, Page 78

Pittsburgh—Some bar mill backlogs in this district continue to range around three to four weeks in most sizes, with two weeks' delivery available in other sizes. Automotive buying remains quiet and no great increase from this source is expected until about Sept. 1. A few other consumers are active, but the situation generally is spotty. Purchasing of alloy bars is fairly steady, featured principally by the volume of orders for small sizes. Prices are steady.

Cleveland — Seasonal influences continue to be felt in light orders. Dullness as a result of the automotive changeover period is partially offset by a lively demand from agricultural tool and implement makers. Backlogs have diminished and delivery on standard carbon bars is offered in as low as two weeks.

Chicago—Bar demand is well sustained in most directions except for continued quiet in automotive buying. Heavier orders for 1938 models are in early prospect, however. Farm equipment manufacturers continue to give strong support to demand, operations of this industry holding near capacity with no early letdown in sight. Bar mills are faced with good schedules through August despite some curtailment in backlogs. Deliveries vary according to size of material, averaging around 30 days.

New York—Commercial bar demand still lags, with most producers able to offer deliveries in two weeks and in some cases less. Of major products bars appear to be the most easily available. Demand locally reflects declining specifications from railroads and bolt and nut manufacturers in particular. Prices are steady.

Boston—Wyckoff Drawn Steel Co., Pittsburgh, has been awarded approximately 400 tons of alloy steel bars, mostly chrome-molybdenum, for the Newport, R. I., naval station.

Philadelphia—Slightly better demand has developed from some sources but buying generally continues to lag. Standard sizes are freely available from mills in two weeks or less.

Birmingham—Paced largely by demand from plow manufacturers, a backlog is being built up in bars with indications the season just ahead will accentuate the demand which now has production at near capacity.

Seattle—Mill buying has resumed in small volume but demand is limited as dealers bought heavily before price advances. Stocks are still above normal and mills expect no large orders during third quarter.

Pipe

Pipe Prices, Page 79

Pittsburgh—Pipe line prospects have brightened with Shell Pipe Line Corp.'s announcement that it contemplates building a 250- mile 8-inch welded pipe line from the Shell refinery at Roxana, Ill., to Indianapolis, at an estimated cost of $3,000,000. Standard Pipe Line Co. plans to lay 141 miles of 8-inch and 6-inch pipe, connecting the Louisiana coastal fields with the Baton Rouge refinery of Standard Oil of Louisiana. United Fuel Gas Co. is planning a 95-mile gas line from Gilmore county, W. Va., to the Pennsylvania boundary near Majorsville. Numerous gathering lines are being projected.

Cleveland—Pipe requirements are limited to small projects and re-

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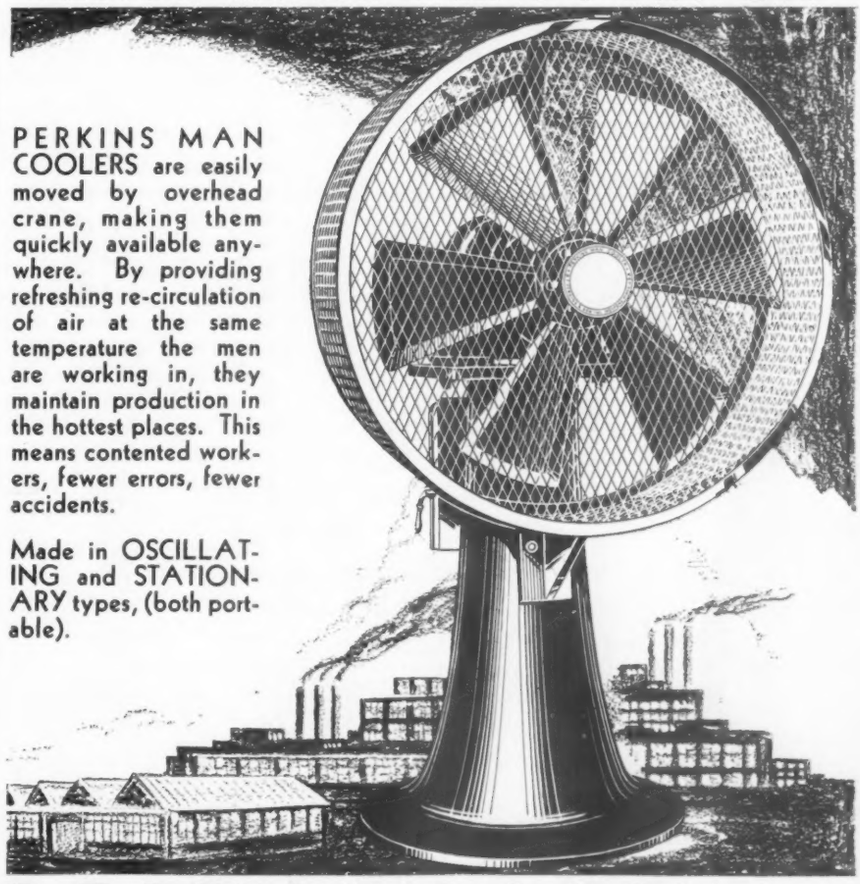

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pairs. Few major awards or inquiries were noted during the past week. A fair amount of standard steel pipe is being sold out of jobbers' stocks.

Chicago—Work will start shortly on a 250-mile line of 8-inch welded pipe to be laid between Roxana, Ill., and Indianapolis for Shell Petroleum Corp. This is the largest pipe line inquiry in several months. Cast iron pipe continues quiet, business lacking improvement compared with recent weeks and a year ago. Except for the placing of 500 tons by Milwaukee, most orders are small, while small lots predominate new inquiries.

Boston—Steel pipe demand is light with few large individual tonnage projects active. Resellers are taking numerous orders, but mostly for small lots. Cast iron pipe buying is confined mostly to small lots and releases against blanket contracts.

New York—While $55.80, delivered, was low on a small part of the tonnage, bids averaged $56 a ton on 3684 tons of cement-lined cast pipe, 6 to 20-inch, New York city yard stocks, Aug. 2. Three foundries will share the business. National Tube Co. was awarded steel tubing for the navy yards at $27,915.50. Bids on this tonnage were taken two weeks ago. Cast pipe buying is confined mostly to small fill-in lots, the aggregate tonnage being substantial.

Buffalo—New inquiry for pipe continues to come forward at an unusually good rate for the season. Tonawanda, N. Y., has authorized the laying of an 8-inch line from the River road section to the refinery of the Atlantic Refining Co. and several other new petroleum projects are understood to be about ready for contracts.

Corpus Christi, Tex.—Duval Pipe Line Co., Pittsburgh, O. D. Robinson, president, will build a 68-mile pipe line from the north and south Sweden fields in Duval county, Tex., to the Republic Oil Co. terminal in this city.

Birmingham—Cast iron pipe plants are doing slightly better than 50 per cent at the moment, but orders are extremely light and no large inquiries are reported.

Seattle—No improvement is noted in pipe. Funds for proposed municipal improvements are being allocated sparingly and projects are not developing. Seattle plans a sectional expansion but plans are not yet out. No award has been announced at Phillipsburg, Mont., which opened bids July 6 for a $75,000 pipe line project.

Steel Pipe Placed

1000 tons, 4-inch and under, welded steel pipe, bureau of supplies and accounts, navy department, delivery various yards, to Albert Pipe Supply Co., Brooklyn, N. Y., $83,976.99, delivered; 40 tons, wrought iron pipe included.

Steel Pipe Pending

15,000 to 20,000 tons, 250 miles, 8-inch pipe line from Roxana, Ill., to Indianapolis, for Shell Pipe Line Corp.

Cast Pipe Placed

3775 tons, 6 to 24-inch, class 150, Charlotte, N. C., to Lynchburg Foundry Co., Lynchburg, Va.

500 tons, Milwaukee, to Alabama Pipe Co., Anniston, Ala.

110 tons, 6 to 24-inch, sewage disposal plant, Barberton, O., to J. B. Clow & Son Co., Cleveland.

Cast Pipe Pending

3684 tons, 6 to 20-inch, cement-lined, New York city borough yard stocks; United States Pipe & Foundry Co., Burlington, N. J., low on 2240 tons; Donaldson Iron Works, Emaus, Pa., low on 908 tons, Warren Foundry & Pipe Co., Philipsburg, N. J., low on 536 tons; bids Aug. 2, department of purchase, New York.

450 tons, 18-inch, enameled-lined sewers, Rye, N. Y., two contracts, bids in, Winchester county sanitary sewer commission, Aug. 6.

130 tons, 6-inch, Upper Arlington, O.; bids in.

110 tons, 6-inch, procurement division, treasury department, New Orleans; bids Aug. 3.

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Transportation

Track Material Prices, Page 79

Railroad equipment demand is increasing, both for cars and locomotives. The export field is particularly active. Sorocavana Railways, Brazil, has placed 500 allsteel box cars with Pullman-Standard Car Export Corp., New York. This is the largest car export order in some time and brings total export orders for the year to about 1250 cars.

South African Railways and Harbors, Johannesburg, is asking bids in September for 45 locomotives. English bidders appear particularly favored as many English specialties are involved.

Baltimore Transfer Co., Baltimore, is inquiring for 22 trackless trolleys, including one all-service vehicle.

The leading pending business is 500 to 1000 box cars and 100 hopper cars for The Texas & Pacific, bids for which will be taken this week. Rail backlogs are being reduced, with only a moderate amount of new business in prospect. Shipments of bars, plates and shapes to railroads and freight car builders against contracts continue heavy.

Freight car buying continues light

although builders have inquiry before them for upwards of 2225 cars.

Domestic freight car awards in July amounted to 1030, of which 1000 were placed by a midwestern railroad with its own shops. This brought the total for the first seven months up to 47,015, against 35,338 in the corresponding period of 1936, 6833 in the first seven months of 1935 and 23,278 in the same period in 1934. Further comparisons follow:

	1937	1936	1935	1934
Jan.	17,806	2,050	24	152
Feb.	4,972	6,900	806	19,725
March	8,155	632	0	30
April	9,772	4,427	350	800
May	4,732	8,900	2	717
June	548	5,200	5,151	1,835
July	1,030	7,229	500	19
7 mos.	47,015	35,338	6,833	23,278
Aug.	.....	225	200	105
Sept.	.....	1,750	875	7
Oct.	.....	2,210	1,250	75
Nov.	.....	1,550	100	254
Dec.	.....	23,450	10,050	110
Total	.....	64,643	19,308	23,829

Car Orders Placed

Chicago & North Western, 50 caboose car underframes, to American Car & Foundry Co., New York.

Peoria & Pekin Union railroad, 25 gondolas, 50-ton capacity, and 25 hopper cars, 50-ton capacity, to Pressed Steel Car Co., Pittsburgh.

Phelps Dodge Corp., six flat cars, to the Youngstown Steel Car Corp., Youngstown, Ohio.

Sorocavana Railways, Brazil, 500 all-steel box cars, to Pullman-Standard Car Export Corp., New York.

Locomotives Pending

South African Railways and Harbors, Johannesburg, 45 locomotives; bids in September.

Wire

Wire Prices, Page 79

Pittsburgh—Automotive specifications for wire have been slightly heavier and it is evident a good proportion is for 1938 models. Meanwhile, merchant products remain quiet, reaffirmation of present prices for fourth quarter removing incentive to reorder. Jobbers anticipate an active fall. Prices are firm.

Cleveland — Manufacturing wire specifications continue light, due to lack of volume from automotive sources. Merchant products, aided by a fairly strong agricultural demand, are somewhat more active. Mills are taking advantage of lull to build up stocks against anticipated better demand within the next two months.

Chicago—While wire demand has shown little change, an upturn in buying is looked for soon. Automotive orders for new models so far have been only moderate but additional buying is scheduled to be done within the next few weeks. Backlogs of producers are only moderate, following heavy shipments, and fairly early delivery is possible in most instances.

Boston—Wire buying is quiet, incoming volume about equal to the reduced rate of the last few weeks with specifications well diversified. Backlogs are well depleted in most instances and deliveries prompt. Operations are less active in some finishing mill departments. Most current orders are for immediate delivery with slight interest in fourth quarter needs in view of reaffirmed prices. New business traceable to the automobile industry shows signs of revival and with some producers the decline from such sources is less evident than in other consuming industries.

Buffalo—Wireworks here have continued to operate at 75 per cent of their open-hearth capacity long after their usual seasonal peak period has passed. Demand for wire products of all kinds is unusually good for midsummer.

New York—Demand for practi-

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cally all wire products is slack, incoming volume being made up of fairly numerous small orders covering a wide range of specifications for early shipment. Some volume has already been placed by auto partmakers, but the total has been small.

Shapes

Structural Shape Prices, Page 78

New York—With approximately 25,000 tons active, pending structural steel requirements are made up mostly of several large projects with more than 10,000 tons to come out shortly for a west side elevated highway project. Awards, somewhat lighter, include 2105 tons, anchorages, Bronx-Whitestone Bridge, New York, and 1145 tons, four bridges, Pennsylvania railroad, New Brunswick, N. J., both going to American Bridge Co.

Joseph T. Ryerson & Son Inc. is closing out its structural fabricating shop operations at Jersey City, N. J., completing work on hand but taking no more tonnage. Similar activities at its Chicago plant are being continued.

Boston—Structural steel requirements are substantially heavier. Inquiry for bridges, Massachusetts, Vermont and Connecticut, are more numerous. Bids are in on work in the latter state taking 2000 tons, including steel piling. Contracts are more numerous, few taking large tonnages. Most work is being closed with Pennsylvania fabricators, labor troubles having handicapped shops in the Boston district. Considerable expansion by industrial plants is underway.

Philadelphia—While considerable state work is seen ahead current tonnage is relatively light and mill backlogs have been reduced to four weeks or less. Bids are in for the Bendix plant, which figured 1700 tons instead of the 2000 tons expected. The anticipated local courthouse job, taking 4500 tons, is still held up.

Pittsburgh—Large awards for structural shapes were scarce last week, but volume of jobs under 1000 tons was well maintained. American Bridge Co., Pittsburgh, has booked 883 tons for the Westchester avenue bridge, Bronx, N. Y., and will supply 1145 tons for four bridges for the Pennsylvania railroad. Prices are steady.

Cleveland—Inquiries and awards are light and few major projects are pending. Small projects, however, are fairly numerous. Mill backlogs are being reduced and deliveries generally range around four to six weeks.

Chicago—Structural inquiries are headed by 4000 tons for a federal courthouse at Kansas City. With a few exceptions, most new projects involve lots of less than 100 tons. Smaller jobs are fairly numerous but are insufficient to bolster total tonnage. Pending work in the immediate Chicago area is light.

Seattle—No large tonnages are up for figures except several projects at Bonneville, calling for more than 600 tons, bids Aug. 13 and 17. No action has been taken on Seattle's Ruby dam contract, involving about 400 tons. Washington Iron Works, Seattle, plans a steel frame warehouse addition to its local plant.

Unit Steel Bids to Triborough Bridge Authority

Anchorages, Bronx-Whitestone Bridge, East river, New York, tenders July 21, contract No. WB-4

Material	Unit	A	B	C	D	Lowest total
Reinforcing steel, lbs.	960,000	$0.052	$0.05	$0.06	$0.07	$48,000
Steelworks in beams and girders, base, Queens anchorage, lbs.	1,300,000	0.0595	0.06	0.06	0.06	74,750*
Steelwork, cable anchors, lbs.	2,500,000	0.0816	0.07	0.07	0.075	175,000
Miscellaneous steelwork, lbs.	350,000	0.10	0.08	0.08	0.10	28,000
Eye-bars, tested to destruction, lbs.	54,000	0.08	0.09	0.07	0.08	3,780

A—Corbetta Construction Co. Inc. awarded contract at $929,560; B—Rodgers & Hagerty Inc. second low, $1,023,990; C—Frederick Snare Corp. third low, $1,040,330; D—P. T. Cox Contracting Co. Inc. fourth low, $1,107,720. All contractors, New York.

*By Garofano Construction Co. Inc., Mount Vernon, N. Y., sixth low bidder, quoting $0.0575 per pound.

Structural steel awarded to American Bridge Co., Pittsburgh; reinforcing steel to Fireproof Products Co., New York.

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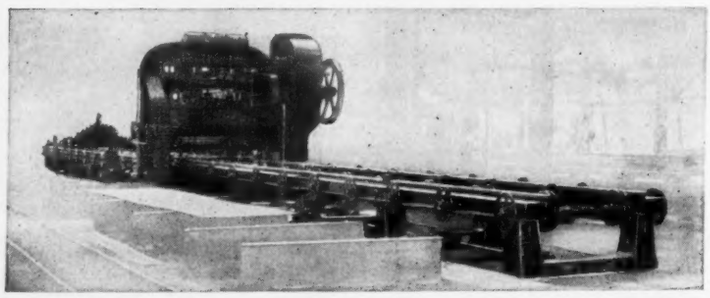

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Shape Contracts Placed

2102 tons, anchorages, Bronx-Whitestone bridge, New York, contract WB-

Shape Awards Compared

	Tons
Week ended Aug. 7	13,213
Week ended July 31	12,412
Week ended July 24	29,463
This week, 1936	28,125
Weekly average, 1936	16,332
Weekly average, 1937	25,945
Weekly average, July	23,384
Total to date, 1936	721,850
Total to date, 1937	830,247

Includes awards of 100 tons or more.

4, to American Bridge Co., Pittsburgh; Corbetta Construction Co. Inc., New York, general contractor. Bids July 21 to Triborough Bridge Authority, New York; unit bids on steel, page 90.

883 tons, bridge, Westchester avenue, Bronx, N. Y., to American Bridge Co., Pittsburgh.

880 tons, highway project 77-31 ERP 9, Geary, Kan., to Missouri Valley Bridge & Iron Co., St. Louis.

716 tons, addition, Albany hotel, Denver, to Bethlehem Steel Co., Bethlehem, Pa.

600 tons, boiler house, Milwaukee Electric Railway & Light Co., Milwaukee, to Worden-Allen Co., Milwaukee.

500 tons, repairs, Glennwood bridge, Pittsburgh, to Pittsburgh Bridge & Iron Co., Pittsburgh.

470 tons, bridges No. 31.75 and 31.90, New Brunswick, N. J.; for Pennsylvania railroad, to American Bridge Co., Pittsburgh.

455 tons, state highway project RC 3896, White Plains-Armonk, Westchester county, New York, to Ingalls Iron Works Co., Birmingham, Ala.; Fred Berlanti & Son Inc., White Plains, N. Y., general contractor.

420 tons, curbs and roof supports, contract 4, Queens tunnel, New York, to Commercial Shearing & Stamping Co., Youngstown, O.

350 tons, bridge C-220 over government canal, Portage, Wis., Chicago, Milwaukee, St. Paul & Pacific railroad, to Worden-Allen Co., Milwaukee.

350 tons, mill building, American Rolling Mill Co., Zanesville, O., to Joseph T. Ryerson & Son Inc., Chicago.

300 tons, Fisher Body division, General Motors Corp., Cleveland, to Bethlehem Steel Co., Bethlehem, Pa.

280 tons, storage building, Flushing, N. Y., to Simon Holland & Son, New York, through Wheeler Engineering Co., New York, general contractor.

275 tons, dumping platform, pier No. 1, Brooklyn, N. Y., to Harris Structural Steel Co. through Allen N. Spooner & Sons, New York, general contractor.

275 tons, building, Pennsylvania Telephone Co., Johnstown, Pa., to Griffith-Custer Steel Co., Johnstown, Pa.

275 tons, repairs, Eighteenth street bridge, Chicago, to Fort Pitt Bridge Works, Pittsburgh.

270 tons, buildings, Bellwood, Va., to Virginia Bridge & Iron Co., Roanoke, Va.

260 tons, extension to structural shop, Chicago Bridge & Iron Co., Greenville, Pa., to Bethlehem Steel Co., Bethlehem, Pa.

250 tons, state highway grade separation, New York, New Haven & Hartford railroad, North Canaan, Conn., to Bethlehem Steel Co., Bethlehem, Pa.

245 tons, building, Cluett, Peabody & Co., Leominster, Mass., to Bethlehem Steel Co., Bethlehem, Pa.

230 tons, building, Dollar Savings Bank, Bronx, New York, to Bethlehem Steel Co., Bethlehem, Pa.; White Construction Co., New York, general contractor.

230 tons, bridge No. 31.80, New Brunswick, N. J., for Pennsylvania railroad, to American Bridge Co., Pittsburgh.

225 tons, bridge No. 31.63, New Brunswick, N. J., for Pennsylvania railroad, to American Bridge Co., Pittsburgh.

220 tons, bridge No. 31.56, New Brunswick, N. J., for Pennsylvania railroad, to American Bridge Co., Pittsburgh.

195 tons, bridge WPGM 256-E, Kingfisher county, Oklahoma, to Pittsburgh-Des Moines Steel Co., Pittsburgh.

190 tons, 150 tons structurals, 40 reinforcing bars, post office and court house addition, Muskogee, Okla., to J. B. Klein Iron & Foundry Co., Oklahoma City, Okla.; Manhattan Construction Co., Muskogee, general contractor.

185 tons, building, Wood and Seventeenth streets, Philadelphia, to Lehigh Structural Steel Co., Allentown, Pa.

184 tons, state bridge, Glendive, Mont., to unstated interest.

178 tons, state span, Sweet Grass county, Montana, to unstated interest.

150 tons, fabricated steel bids direct, addition, bagging and shipping building, fertilizer works, Tennessee Valley Authority, Knoxville, Tenn., to Decatur Iron & Steel Co., Decatur, Ill.; bids July 21.

145 tons, state bridge, Hawkins-Sullivan counties, Tennessee, to Nashville Bridge Co., Nashville, Tenn.

140 tons, state highway project 258-3-37, Erie county, New York, to Lackawanna Steel Construction Co., Buffalo.

135 tons, stores and theater, Brattleboro, Vt., to Bethlehem Fabricators Inc., Bethlehem, Pa.

125 tons, addition, Lafayette school, Washington, to Fort Pitt Bridge Works, Pittsburgh; Ross Engineering Co., Washington, general contractor.

115 tons, Station WGY, Schenectady, New York, to James McKinney & Son, Albany, N. Y., through A. L. Hartridge Co., New York, general contractor.

105 tons, state bridge RC 2482, Maine-Glen Aubrey highway 1449, Broome county, New York, to Utica Steam Engine & Boiler Works, Utica, N. Y.; Davis & Stearns Inc., Whitesboro, N. Y., general contractor; bids July 8.

105 tons, theater, Wilkes-Barre, Pa., to Weatherly Steel Co., Weatherly, Pa.

100 tons, addition, Electric Auto-Lite Co., Toledo, O., to Ohio Structural Steel Co., Newton Falls, O.

100 tons, bridge, Mechanics Falls-Minot, Me., to Bethlehem Steel Co., Bethlehem, Pa.

Shape Contracts Pending

4000 tons, federal court house, Kansas City, Mo.; bids Aug. 31.

2500 tons, upper deck, administration building and toll booths, Henry Hudson bridge, Manhattan, New York; bids Aug. 12 to Henry Hudson Parkway Authority, New York.

1500 tons, south unit, Flushing bridge, Queens, N. Y.

1005 tons, including 555 tons steel sheet piling, bridge, Windham, Conn.

800 tons, bridge, Junction City, Kans.

650 tons, warehouse No. 1, Owens-Illinois Glass Co., Streator, Ill.

600 tons, coal tipple and washer, Linton, Ind.

565 tons, including 390 tons steel sheet piling, bridge, Newington, Conn.

560 tons, manufacturing building, Inland Mfg. Division, General Motors Corp., Union county, New Jersey.

500 tons, grade crossing elimination, Pennsylvania railroad, Montour Falls, N. Y.; bids Aug. 10.

450 tons, bridge, for Grand Trunk Western railroad, Detroit.

415 tons, grade crossing, Williamantic, Conn.

400 tons, state bridges, Colorado.

335 tons, bridge, Smiths Basin, N. Y.

330 tons, reconstruction as a single deck bridge, Slades Ferry, Fall River-Somerset, Mass.; bids Aug. 11, department of public works, Boston, G. H. Delano, chief engineer; bridge will have steel bascule lift span with present railroad deck eliminated.

300 tons, addition, public school 222, Brooklyn, N. Y.; bids in direct on steel, fabricating and erecting.

280 tons, steel sheet piling, sanitary

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GRANT GEAR WORKS—Boston

sewer 129th (20th) street, Queens, New York; bids in.
275 tons, post office, Muskegon, Mich.; bids Aug. 31.
260 tons, office building addition, for Sunbeam Electric Mfg. Co., Evansville, Ind.
240 tons, store building, Rockford, Ill., for S. H. Kress & Co.
200 tons, church building, St. Andrews R. C. church, New York.
155 tons, state bridge and approaches, South Main street, Orange, Mass.; bids Aug. 17, department of public works, Massachusetts, G. H. Delano, chief engineer.
132 tons, I-beam overpass, route U. S. 5 at Boston & Maine railroad, near Newbury Village, Vt.; also 68 tons reinforcing steel; bids Aug. 13, department of highways, Montpelier, H. E. Sargent, commissioner.
Unstated, state bridges in four Oregon counties; bids at Portland, Aug. 12.

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Reinforcing

Reinforcing Bar Prices, Page 79

Pittsburgh—A notable feature has been the way prices have held up on projects recently awarded. Before it is completed, the Banksville road project is expected to require considerably more material than the 900 to 1200 tons recently awarded. Inquiries last week included 1100 tons for a building for the Hiram Walker distillery at Peoria, Ill. Sweets Steel Co., Williamsport, Pa., has been awarded 1500 tons for a Philadelphia high school.

Cleveland—Requirements generally are small and the market inactive. Mill stocks are ample and deliveries can be made almost immediately. Demand for state and federal government projects is noticeably lacking. Prices remain firm.

Chicago—Awards are heavier, including 500 tons for a grain elevator and 200 tons for an industrial building here. Inquiries show no improvement and the market is less active than earlier. Shipments are fairly steady but lighter than during second quarter.

Boston—New construction work, notably bridges, is coming out in heavier volume with a slight upturn in reinforcing steel buying. New inquiry includes several hundred tons for Connecticut bridges, bids also being in on 525 tons for a Merritt parkway section, that state. General construction needs approximate 1500 tons, partly figured. Pressure for price concessions continues.

New York—Despite a steady flow of buying, new work requiring reinforcing steel comes out in heavy volume, notably for sewers. Awards include several thousand tons, including highway mesh. Steel piling involved in several engineering projects taking large tonnages of reinforcing is also substantial. Prices continue easy for the larger tonnages.

Philadelphia — Private alteration and addition jobs, usually requiring less than 100 tons, predominate currently but some larger projects are expected to reach the active stage within three or four weeks. Eastern fabricating plants are fairly well stocked with material bought before the last advance.

Seattle—The market is quiet, large tonnages being the exception. The aggregate of small orders is fair but inactive construction limits demand. About 750 tons are involved in Washington state highway projects, bids opened July 20, and others called for Aug. 10. Business pending includes a large unstated tonnage for a bureau of roads bridge in Idaho, awarded to W. C. Burns, Idaho Falls. Reclamation bureau, Denver, is considering bids for 220 tons for Roza dam, opened July 7.

Concrete Awards Compared

	Tons
Week ended Aug. 7	**7,310**
Week ended July 31	**7,409**
Week ended July 24	**8,026**
This week, 1936	**4,723**
Weekly average, 1936	**6,005**
Weekly average, 1937	**5,865**
Weekly average, July	**6,919**
Total to date, 1936	**226,857**
Total to date, 1937	**187,683**

Includes awards of 100 tons or more.

Reinforcing Placed

3400 tons, sewer in Flatbush avenue, Brooklyn, to Igoe Bros, Newark, N. J., through Tomasetti Contracting Co., Brooklyn, general contractor.
1500 tons, academic high school, Philadelphia, to Sweets Steel Co., Williamsport, Pa.
500 tons, edible oil and shortening plant, Swift & Co., Newark, N. J., to Joseph T. Ryerson & Son Inc., Chicago.
500 tons, grain elevator, Albert Schwill & Co., South Chicago, Ill., to Calumet Steel Co., Chicago.
300 tons, bottling plant, Bernheim Distillery, Louisville, Ky., to Inland Steel Co., Chicago.
275 tons, state bridges, Newington and Windham, Conn., to Concrete Steel Co., New York, through M. A. Gammino & Co., Providence, R. I., general contractor.
200 tons, state highway project RC 3896, White Plains-Armonk, Westchester county, New York, to Concrete Steel Co., New York; Fred Berlanti & Son Inc., White Plains, general contractor.
200 tons, building, Union Special Machine Co., to Calumet Steel Co., Chicago.
120 ton five-story addition to St. Vincent's hospital, Bridgeport, Conn., to Concrete Steel Co., New York, through Edward E. Bray Co., Bridgeport, general contractor.
110 tons, bridge, Sycamore street, Clarksburg, W. Va., for Harrison county, to Ben Tom Supply Co.
105 tons, manufacturing building, Landers, Frary & Clark, New Britain, Conn., to Bethlehem Steel Co., Bethlehem, Pa.; A. F. Peaslee Inc., Hartford, Conn., general contractor.
100 tons, building, DePaul university, Chicago, to Calumet Steel Co., Chicago.
Unstated, cold storage warehouse, Hood River, Oreg., to unnamed interest; L. H. Hoffman, Portland, Oreg., general contractor.
Unstated, 248-foot state bridge, Fremont county, Idaho, to unnamed interest.

Reinforcing Pending

1100 tons, building, Hiram Walker distillery, Peoria, Ill.

700 tons, sewer Forty-sixth avenue, Queens, N. Y.; DiSalvo Construction Co., Brooklyn, low.
400 tons, Museum of Modern Art, New York.
300 tons, mesh and bars, manufacturing plant for Ternstedt division General Motors Corp., Trenton, N. J.
210 tons, state prison, Michigan.
200 tons, Huntington avenue, Boston.
150 tons, bridge, Brook avenue between East 134th street and East 135th street, New York.
150 tons, grade crossing, Willimantic, Conn.

Pig Iron

Pig Iron Prices, Page 80

Pittsburgh — Producers here are appraising September's prospects, believing that if September starts off similarly to last year, pressure for iron might be much greater. Because inventories are considerably below a year ago at this time, most producers will ship their production in August. Export inquiries have been lacking for two weeks. Sellers here are slower to accept this type of business than last January below market prices, and at present could not put the iron down at seaboard ports cheaper than other districts.

Cleveland—Pig iron buying continues light as foundry operations show little improvement. Vacations and recession in demand from automobile builders principally are responsble for foundry lull. New business generally is limited to small tonnages for immediate delivery. Shipments are holding up well. Sellers are noncommittal regarding fourth quarter prices, awaiting further developments in scrap market.

Chicago — With foundry operations tending upward slightly, pig iron shipments are extending the upturn which appeared in June. Some producers of automotive castings are busier and moderately better schedules are in effect among some miscellaneous foundries. Consumers generally are well covered for third quarter needs, if not for a portion of fourth quarter requirements, and there has been little buying in anticipation of a price advance next period.

Boston—Inquiry for third quarter delivery by several consumers has injected some activity in a dull pig iron market. Uncertainty as to fourth quarter prices continues with opinions differing as to the likelihood of an advance. Foundry melt holds better than expected. Export inquiry continues substantial with premiums offered.

New York—Dullness continues in pig iron. Specifications shows some improvement, but inquiry is spotty, both domestic and foreign. Labor troubles still threaten the gray iron foundries in Brooklyn.

Philadelphia—Additional coverage for third quarter in lots up to 200 tons is noted but sellers generally are wary of booking orders for fourth quarter in view of a possible advance. Action on prices is expected before the end of August.

Buffalo—Consumers show new interest in pig iron on the basis of reports higher prices may be considered. Labor troubles continue to perplex foundry operators although one western New York strike has been settled. Hanna's now idle furnace at the Rogers Brown plant will go back into production about Aug. 15, after relining, it is expected.

Cincinnati—District foundries appear to have passed the season's low point and demand for pig iron reflects this upturn, even if small. Most buying has been restricted to early needs.

St. Louis—Fairly liberal specifications in the final week of July brought shipments of pig iron for that month slightly above August and about 12 per cent over the July total last year. Interest in fourth quarter coverage is reported to be considerably more in evidence despite absence of numerous company officials on vacations. There is a fair volume of spot buying, including special analysis. The question of fourth quarter prices is still undecided.

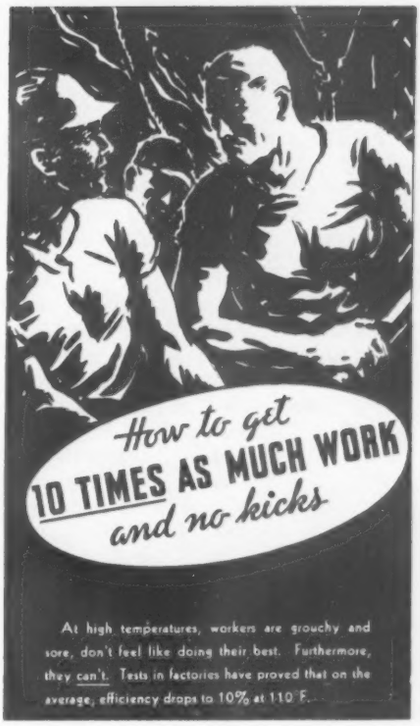
Birmingham—Production of pig iron continues unabated with 18 blast furnaces going and the need for more definitely established in certain quarters. Commercial makers report shipments decidedly stronger with an increase in contract buying. Some talk is heard, locally, in a price advance Sept. 1 influenced, largely, by rising scrap market.

Scrap

Scrap Prices, Page 82

Pittsburgh — The scrap market continued its upward march last week, No. 1 heavy melting rising 50 cents to $21.50 to $22 per ton on a sale to a downriver mill and railroad heavy melting advancing to a range of $22.75 to $23.25 on the basis of railroad list sales. Steel on two of the principal lists was understood to have commanded around $23.25 and on the third, $23. A number of other grades are higher also. Material continued scarce.

Cleveland—Scrap is stronger sentimentally, though melters have bought none and are remaining out of the market consistently. Higher prices in adjacent consuming centers has attracted some scrap from here.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Chicago—Scrap prices are leveling off and sellers are able to pick up heavy melting steel at about 50 cents a ton less than was paid a week ago. This grade nominally is unchanged in the consumers' market, however, at $19.50 to $20 on the basis of last mill purchases. Offerings are moderately heavier and some mills have been receiving shipments at a faster rate than is desired. Quotations on other grades are unchanged.

Boston—Scrap prices continue upward, notably for export. Up to $18, dock, for tonnage is reported paid with $17.50 to $17.75 offered for car lots of No. 1 heavy melting steel. No. 2 cast for export is stronger and for Pennsylvania shipments brokers are offering higher prices for turnings, skeleton and several other grades, including heavy melting steel. Such bids, however, are still well under what the same grades bring for dock delivery. After four months the rule requiring railroad permits to ship to piers, due to congestion, has been cancelled, also the proposed 10 cents per ton dockage charge on scrap at the army base, Boston, the latter cancellation likely to apply at other piers.

New York—On moderately heavier buying scrap prices continue upward. Heavy and No. 1 breakable cast, steel shafting, stove plate and machine shop turnings all being higher for domestic shipment. Heavy melting steel for export is 50 cents higher, brokers paying $16.50 for No. 1, with some buying here by European consumers.

Philadelphia—Scrap shows further indications of strength with additional sales of No. 1 heavy steel at $20. Cast is extremely strong with further sales expected at above current prices. Cupola cast has brought as much as $22 in some instances. Higher prices on all grades are looked for on appearance of new consumer buying in volume. No new export is being done in view of high domestic prices. One cargo left Thursday on an old contract and the remainder of old business will be cleared up in a few days.

Buffalo—Under cover transactions in scrap are probably taking place on a large scale to give dealers opportunity to purchase material to ship on these new orders. It is reported cast has moved in tonnage in such transactions and that stove plate may have been sold for as much as $16. Some dealers claim No. 1 heavy melting steel has brought $20.50 at Buffalo in small lot transactions. There is an improved demand for turnings and borings and prices of these grades are strengthening.

Detroit—The scrap market is approaching the boiling point, with local dealers in a scramble to buy automotive tonnages. Prices in many cases are soaring to levels which some dealers consider far out of line. Busheling is up 50 cents, heavy melting steel another $1, loose clips 50 cents, and machine turnings 50 cents.

The anticipated shortage in scrap supplies from automobile accounts may not develop this month, as production schedules are being maintained and work on 1938 models will be under way with a minimum of lost time.

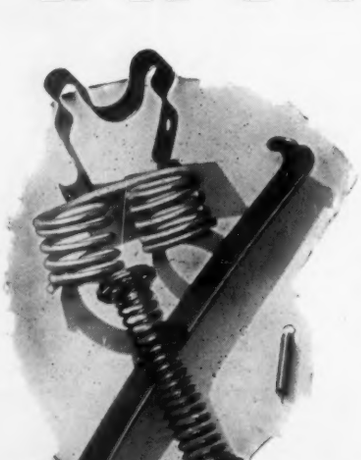
Cincinnati—Dealer activity and sales in nearby markets have raised heavy melting steel $1 per ton, current quotations being $17.50 to $18. Lighter grades were mostly up 50 cents. Mill buying in this district lags, covering for near requirements having been done before the recent rise. Dealers are holding tightly to material, adding strength to the market.

St. Louis—The past several days have been marked by a strengthening in practically all grades of steel scrap, advances of from 25 cents to $1 being made. The extreme advance of $1 was on steel springs and shafting, of which there is a temporary scarcity. Heavy melting steel was up 25 to 50 cents per ton. Aside from the steel grades the market was unchanged. The advance in steel was due principally to activities among dealers, as mills bought rather heavily in July and are pretty thoroughly covered on near-by requirements.

Birmingham—A decidedly strong tone continues in scrap with other advances indicated. Although No. 1 cast is currently quoted at $15.50 to $16 sales during the week at $16 to $16.50 were reported. Export movement is still strong, and foundries are taking considerable tonnage.

Seattle—Dealers are optimistic although at the moment volume is at low ebb. The situation in Japan remains acute and no new business is coming from that quarter and exports are negligible. Exporting houses expect that it may be 60 days before Japan will be in position to resume buying. The domestic turnover is small as mills are adequately stocked. Dealers' prices for No. 1 melting are $7 to $8 net ton and about $14 for rails.

RAYMOND
Springs



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Semifinished

Semifinished Prices, Page 79

Pressure for semifinished deliveries having relaxed slightly, except from tin plate producers, more prompt shipments may be obtained here than three or four months ago. Some producers, however, would hesitate to assure consumers that they could obtain one-month deliveries, because of the fear of depriving producers' own finishing mills. Most mills have been anticipating heavier demand in September. Ford is understood to be well covered now on requirements for the fall assembly program. Semifinished prices are steady.

Warehouse

Warehouse Prices, Page 81

Cleveland—Dullness continues in demand for steel out of store, better mill deliveries relieving pressure on warehouses. Betterment in demand is not expected until after Labor Day when the usual revival in activity is due.

Chicago—Sales are fairly steady but show a moderate recession compared with previous months. Business continues well ahead of the rate a year ago.

New York—With practically all lines affected, warehouse demand has declined, most jobbers reporting incoming tonnage the smallest this year. While prices on standard steels are steady and unchanged, several specialties have been moderately advanced, including stainless steel tubing. Warehouse stocks as a rule are better balanced than a month ago.

Philadelphia—No action has been taken on floor plate prices but it is expected the $6 mill reduction will be followed. Warehouse sales volume is definitely smaller with fewer large orders. Incoming business is well diversified. Adjustments are being made in boiler tube prices which will be announced shortly. The report is circulating that some galvanized sheetmakers plan to set up agency outlets in some sections.

Cincinnati—Sales from warehouse are holding at a satisfactory level, down a few points from earlier months. Volume, however, is considerably higher than for the corresponding period last year.

St. Louis—While continuing well above a year ago, warehouse business in July fell slightly below the June volume and has shown further recession during the first days of August. Purchasing by railroads has dropped off noticeably, except in the case of structural shapes and some fill-in shop supplies. There is still an excellent demand for oil country goods, both from the south and southwest and the newly developed field in south central Illinois.

Tin Plate

Tin Plate Prices, Page 78

Pittsburgh—Pressure being exerted for deliveries continues the outstanding feature in tin plate, with the peak of the packers' can season already reached in certain sections. As usual at this time of year, warm weather is making it difficult to determine operating schedules from day to day, but every effort is being made to speed up production. Some general line business is being placed for fourth quarter delivery at $5.35 per base box. The present high rate of activity is expected to be maintained well through the balance of this year.

Steel In Europe

Foreign Steel Prices, Page 81

London—(*By Radio*)—Pig iron supplies continue short in Great Britain, with hematite somewhat more plentiful but with exports restricted. Iron and steelworks in Scotland have resumed at capacity after the vacation season. Fair demand exists for sheets and galvanized sheets for domestic use but export demand is quiet. Trade in tin plate is satisfactory.

The Continent reports more active demand for export, especially from the United States, Central and South America and the Near East.

Cold-Finished

Cold Finished Prices, Page 79

Pittsburgh — Cold-finished producers continue to operate on more of a hand-to-mouth basis in this district than at any other time this year, principally due to the lull in the automotive industry. Cold-finished sellers are optimistic over the prospects for the fall, however. Backlogs are greatly depleted, facilitating shipments.

Iron Ore

Iron Ore Prices, Page 82

Cleveland—Shipments of iron ore from the upper lake ports during July totaled 10,704,457 tons, compared with 10,107,883 tons in June and 7,159,563 tons in July, 1936. Shipments for the year to Aug. 1 amounted to 34,626,751, against 18,837,073 to Aug. 1, 1936, an increase of 83.8 per cent.

Shipments for the season to Aug. 1 in 1936 and 1937, as tabulated by the Lake Superior Iron Ore association, follow:

Port	To Aug. 1 1936	To Aug. 1 1937
Escanaba	982,770	1,678,324
Marquette	1,882,587	2,649,371
Ashland	1,920,342	2,880,266
Superior	7,048,389	11,891,899
Duluth	4,767,017	9,880,223
Two Harbors	2,235,968	5,646,668
Total	18,837,073	34,626,751

New York—Substantial 1938 contracting of chrome ore is reported, with the business taking on the basis of present freight rates with any excess at the time of delivery to be for buyer's account. As there is not the slightest indication of any reduction in freight rates in coming months apparently, buyers are not insisting upon a clause to the effect that a reduction in rate would be credited to them.

This buying for next year is coming at least a month to six weeks ahead of normal, the early interest

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this year being attributed to heavy buying of ore abroad as well as to increasing requirements here, all of which point to an upward trend in prices.

Reflecting the strained situation between China and Japan, as well as expanding demand throughout the world, Chinese wolframite is higher at $23 to $24 per short ton unit for November and December delivery from the Orient. The market in Europe, where demand has been excessively heavy, is even stronger at the equivalent of around $25.50 duty paid, according to reliable advices here. There has been no recent change in ferrotungsten, however, which is holding at $1.80 to $1.85 per pound, tungsten contained, freight allowed, in carlots.

No contracting of foreign iron ore for next year has yet been reported, with prices meanwhile largely nominal.

Metallurgical Coke

Coke Prices, Page 79

While beehive coke movement from the Connellsville, Pa., fields continues lighter than three or four months ago, considerable material is still being shipped and operators expect renewed activity in the fall, especially when cold weather again diverts by-product production to domestic consumption. Pittsburgh Steel Co. has purchased the Thomson No. 1 and No. 2 and Tower Hill No. 2 mines from Hecla Coal & Coke Co. in the Brownsville region for coke for its blast furnaces. The mines have been working steadily.

Nonferrous Metals

Non ferrous Metal Prices, Page 80

New York — Extreme bullishness ruled the metal markets last week with two consecutive daily advances of $5 per ton each made in one of the leading metals and market-wide increases believed imminent for two others. The statistical positions of virtually all departments in the nonferrous field were shown to have strengthened measurably.

Copper — Sales heaviest of any week in months at above 23,000 tons. Export market active and higher closing Friday at 14.65c, c.i.f., European ports. Price rise believed near in many quarters, but leading sellers attempting to hold situation in check. Meanwhile electrolytic held at 14.00c, Connecticut.

Lead — Advanced total of $10 per ton with two $5 rises on successive days. Now quoted at 6.35c, East St. Louis, and 6.50c, New York, with demand unabated despite the rise.

Zinc — One seller lifted price Friday to 7.25c, East St. Louis, for prime western, a rise of $5 a ton. Market mixed at close Friday as other sellers withdrew and one continued to quote 7.00c to regular customers only. Metal known to have moved at 7.25c.

Tin — Strength developed in both London and domestic markets, with some speculation present, especially abroad. Drought fears in Malaya district lent impetus to market, which closed Friday at 60.37½c for Straits spot.

Antimony — Prices held without change and consumers showed little improvement in interest. Both Chinese and American spot metal quoted at 15.37½c, New York.

Equipment

Boston—New orders have declined, but with heavy backlogs builders of practically all types are operating as full as vacations and other seasonal factors permit. While shipments are heavy, slight, if any improvement in deliveries is noted. Inquiries are numerous for both replacement and expansion, the bulk being for special tools, improved production models, frequently of semi-automatic operation. Builders of heavier lines also have good order books. For the Springfield, Mass., armory, substantial orders have been placed for miscellaneous machinery, lathes, temperature control equipment, grinders, shaper and vertical drill presses, seven of the latter going to Leland-Gifford Co., Worcester.

New York—The somewhat slower trend of incoming orders is more than balanced by heavier inquiry, indicating a rebound and brisk Fall buying. New volume has not flattened out to the usual mid-summer decline and some dealers' July totals approximate June. Several large lists for new plant installations pend, notably the Ternstedt division, General Motors Corp., Trenton, N. J. Machinery, largely presses, for this new plant is being bought at Detroit. While shipments on some types of tools are slightly heavier, with most shops operating full shifts, deliveries are extended and some orders are on the books for February shipment. Most of the larger industrial plants in the east are steady buyers of equipment, one or two units at a time, with a strong export demand for some lines, notably grinders.

Chicago—While July sales of machine tools and plant equipment in most instances showed a decrease from June, activity has been maintained at a relatively high rate, and August business is expected to show little further decrease if not a moderate improvement. Machine tool inquiries lately have been substantial despite a recession from the previous several months, while small tool demand lately has been more active. No large lists are pending, business being made up of a number of small inquiries. An occasional inquiry is coming from railroad shops but the carriers in general have completed their major buying programs for this year.

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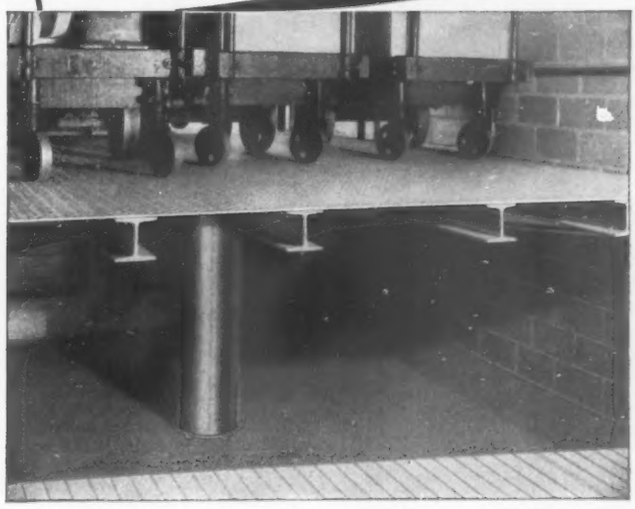

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Ohio

CINCINNATI—General Spring Co., 125 East McMicken avenue, plans to install electric power equipment in a new 1-story plant addition, 85 x 165 feet, which will cost close to $65,000. Carlton, Frankenberger & Batson, 4122 Davis lane, are engineers and architects.

CLEVELAND—Cleveland Chain & Mfg. Co., Broadway and Henry streets, will build a 1-story addition, 70 x 225 feet, costing over $85,000. Electric power equipment will be installed. Herman W. Maurer, 3126 Scarboro road, is architect.

COLUMBUS, O.—City is taking bids due noon, Aug. 17, for stoker and boiler units in power plant. L. Lewis is service director, city hall.

CONVOY, O.—Village plans to build a sewage treatment plant and distribution system costing $204,000, with WPA aid. City will issue bonds. John S. Redlinger is mayor and Champe, Finkbeiner & Associates, 1025 Nicholas building, Toledo, are engineers.

DAYTON, O.—Frigidaire division of General Motors Corp. will begin work in August on new 2-story addition to electrical refrigerator manufacturing plant, 80 x 700 feet. Electric power equipment will be installed. Cost is estimated at more than $750,000. Schenck & Williams, Third National building, are architects.

DAYTON, O.—H. Gerstner & Sons Co., 10 Cincinnati street, is taking bids for a 2-story, 55 x 90-foot plant addition to cost over $40,000. R. Yount, 1140 Third National Bank building, is architect.

DILLONVALE, O.—Village plans to build a waterworks plant costing $103,000, and has received a PWA grant of $45,000. Mortgage revenue bonds of $58,000 will be sold. Peter Savage is mayor and Paul W. Elwell, 5005 Euclid avenue, Cleveland, is engineer.

DOVER, O.—Tuscarawas Bituminous Co., newly incorporated, will ask bids soon for construction of a factory for manufacturing road products. Cost will be around $40,000.

KIMBOLTON, O.—Village is considering construction of waterworks plant, dependent on WPA approval, which is expected soon. Lafe Bigson is village clerk.

MENTOR, O. — Village is preparing plans which will be ready for bids around October for construction of a water plant, to include a water softener, iron removal plant, two turbines, two centrifugal pumps, a 150,000-gallon elevated steel tank, and various appurtenances. Total estimated cost is $132,000, of which $100,000 will be private financing and $32,000 a bond issue. R. A. Snell is chairman of committee in charge of plans. Paul Elwell, 5005 Euclid avenue, Cleveland, is engineer.

MONROEVILLE, O.—Village plans to build a water softening and purification plant at a cost of $52,000. Clarence H. Zipfel is mayor, and Champe, Finkbeiner & Associates, 1025 Nicholas building, Toledo, are engineers.

NELSONVILLE, O.—Voters will pass Nov. 2 on bond issue of $90,000 to finance construction of proposed improvements to light plant and waterworks. The following new equipment will be installed: Three modern 300-horsepower stoker-feed boilers, a water softening unit, four deep well electric turbine pumps and an engine and generator unit. Estimated cost is $80,000. S. G. Holland is mayor, and engineer is B. M. Coakley, Nelsonville. (Noted STEEL, July 12).

NEW ATHENS, O.—City plans to build a waterworks plant and distribution system to cost $46,000. PWA approval has been granted, but no funds have been allocated. City will sell approximately $28,000 worth of mortgage revenue bonds as its share of cost. J. E. McFadden is mayor and Paul W. Elwell, 5005 Euclid avenue, Cleveland, is engineer.

PAINESVILLE, O.—City will probably ask bids soon for power plant alterations and a new boiler setting. C. S. Fullerton is city manager. Ralph Hadlow, 700 Prospect avenue, Cleveland, is engineer.

PERRYSBURG, O.—Village plans to make improvements to its waterworks plant costing $46,000, village share to be $25,000, proposed to be raised by mortgage revenue bonds on which voters will pass Sept. 21. Engineers are Champe, Finkbeiner & Associates, 1025 Nicholas building, Toledo.

SOUTH CHARLESTON, O.—Village is considering construction of sewage disposal plant and distribution system, to cost $135,000, with WPA aid for the majority of the expense. C. D. Juvenal is mayor. Maturity is awaiting WPA approval.

SUGAR CREEK, O.—Village plans to build iron removal and water softening plant, and is awaiting PWA allocation of funds. Cost will be $13,000. Hoover & Montgomery, 8 Long street, Columbus, are engineers.

TORONTO, O.—City plans to construct a water softening plant to cost $21,000, with PWA aid. Robert Bell is service director, Charles Cox is city engineer, and Hoover & Montgomery, 8 East Long street, Columbus, are engineers.

WELLSVILLE, O.—City plans to make improvements to waterworks plant at a total cost of $130,000, city to contribute $71,500, remainder to come from PWA. A 2,000,000-gallon filtration will be built. C. Fred Bluth is service director and R. M. Hunter, Wooster, O., is engineer.

WEST UNION, O.—Village has completed plans for building a waterworks and sewage disposal plant, but maturity is dependent on WPA approval. Engineers are Burgess & Niple, 568 East Broad street, Columbus.

WILLARD, O.—Village will ask bids soon for improvements to light plant and waterworks, estimated to cost $16,000. Clarence C. Hessler is village clerk, and F. M. Strauss, 2613 Queenston, Cleveland, is engineer.

Massachusetts

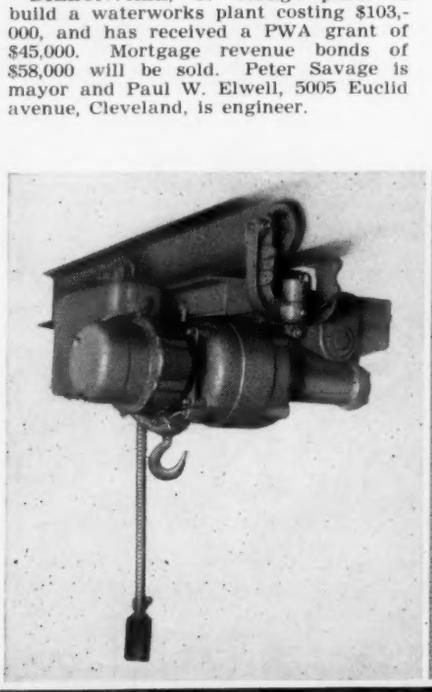
CAMBRIDGE, MASS.—Boston Blacking & Chemical Co., Kendall square, plans to construct new plant additions and will ask bids soon on general contract. Motors and controls, conveyors, regulators, and other handling equipment will be installed. Approximate cost is $350,000. Coolidge, Shepley, Bulfinch & Abbott, 1 Court street, are architects, and Hollis French, 210 South street, is engineer. The company is a subsidiary of United Shoe Machinery Corp., Boston.

Maine

LEWISTON, ME.—City light and water department plans to extend and improve municipal power plant and waterworks pumping station, and will install a diesel engine generating unit with accessories, pumping machinery and auxiliary equipment. Total cost will be close to $200,000. Whitman & Howard, 89 Broad street, Boston, are engineers.

Rhode Island

PROVIDENCE, R. I.—Narragansett Electric Co., subsidiary of New England Power association, plans to spend $4,000,000 for additional capacity. A 40,000-kilowatt, 1200-pound, 6300-revolutions-per-minute steam turbogenerator will be installed, with a 430,000-pound-per-hour boiler. Installations will



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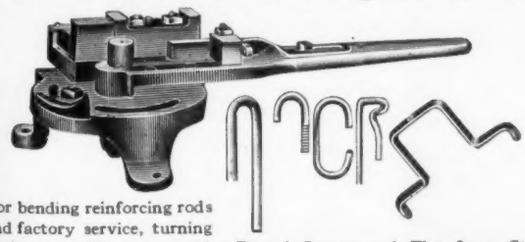

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New York

ALTON, N. Y.—Ensbacher-Alton Chemical Co. is taking bids for construction of a $45,000 chemical manufacturing plant.

SCHENECTADY, N. Y.—American Locomotive Co., North Jay street, is taking bids for construction of a foundry on Front street. Cost will be over $40,000.

New Jersey

BURLINGTON, N. J.—Public Service Electric & Gas Co., 81 Park place, Newark, is planning an enlargement and improvement program to cost $12,000,000. Work will include extension of the present power station and installation of a 100-000-kilowatt turbogenerator, a high pressure boiler and auxiliary equipment.

Pennsylvania

CHESTER, PA.—Scott Paper Co., foot of Market street, plans to build a $1,000,000 addition to its mill, and will install electric power equipment. Stone & Webster Engineering Corp., 49 Federal street, Boston, is engineer.

LOCK HAVEN, PA.—Taylor Aircraft Co., Bradford, Pa., has acquired the plant of the former Susquehanna Silk Mills, and plans to remodel it for aircraft manufacturing. Electric power and mechanical handling equipment will be installed. Cost will be close to $100,000.

ST. MARY'S, PA.—Spear Carbon Co., J. C. Lion, chief engineer, is taking bids on the general contract for construction of a 1-story, 82 x 182-foot plant estimated to cost $40,000.

Michigan

DETROIT—Zig Engineering Service Co., 10633 Canfield avenue, has been incorporated to manufacture machinery, by Fred T. Mohn, Grosse Pointe, Mich.

DETROIT—Lauhoff Roller Mill Works Inc. has been organized to manufacture machinery, by Frank Lauhoff, 231 Chene street.

LANSING, MICH.—City will ask bids late in August for new equipment for electric power and steam plant, and for construction of an addition. Total cost including equipment will be about $2,750,000. Engineer is Claude Erickson, 1509 Washington street, Lansing.

NEWBERRY, MICH.—Robbins Flooring Co., Paul Abendroth, manager, will rebuild its factory and kilns, which were recently damaged by fire. C. R. Meyer & Sons Co., Oshkosh, Wis., has general contract.

PONTIAC, MICH.—American Forging & Socket Co. has started construction of an addition to its plant, for which the general contract has been let. Total cost, including equipment, will be about $150,000. W. S. Saunders is president.

UBLY, MICH.—Thumb Electric Cooperative, Frank Nelson, president, plans construction of a $300,000 electric generating plant at Ubly, and will erect 1800 miles of rural transmission lines.

Illinois

CHICAGO—Sherwin-Williams Co., 647 East 115th street, plans to install motors and controls, electric hoists, transformers, conveyors, and other equipment in new 4-story plant addition costing around $100,000.

CHICAGO—Albert Schwill & Co., 141 West Jackson boulevard, will install electric power equipment in additions to its plant at Avenue C and 103rd street. Conveyors, loaders, and other mechanical handling equipment will also be needed. Entire cost will be around $750,000.

CHICAGO—Guy Rocco, 5242 West Division street, is head of a project to construct and operate two hydroelectric power plants of about 9000-kilowatt capacity each, at the United States locks and dams on Des Plaines river, Brandon road, and on the Illinois river, Dresden island. Application has been made to the federal power commission for permission.

CHICAGO—Plant of Hamler Boiler & Tank Co., 6025 West Sixty-sixth street, was damaged recently by fire.

KANKAKEE, ILL.—General Foods Corp., 250 Park avenue, New York, plans to build a new milling plant at a cost of over $400,000, and will install motors and controls, conveyors, transformers, and accessory equipment.

Indiana

EVANSVILLE, IND.—Southern Indiana Gas & Electric Co. plans to extend and improve its local steam-electric power plant, and to install new equipment. Cost will be about $300,000.

MISHAWAKA, IND.—Indiana & Michigan Electric Co., subsidiary of American Gas & Electric Co., plans to enlarge its plant capacity by 62,500 kilowatts. Total cost of machinery and equipment with accessories will be about $4,000,000. George N. Tidd is president of American Gas.

Alabama

MOBILE, ALA.—Standard Oil Co. of Louisiana plans to install power equipment, pumping machinery, steel tanks, and other mechanical equipment in connection with expansion of its bulk oil and storage plant. Total cost will be about $200,000.

MOBILE, ALA.—National Gypsum Co., Buffalo, N. Y., plans to construct a plant for manufacturing insulated fibre board. Estimated expenditure will be $2,000,000.

Maryland

WELCOME, MD.—Southern Maryland Tri-County Co-operative association, Wendell M. Reed president, has been allotted $50,000 by REA for construction of electric generating plant. Morris & Wells, Salisbury, Md., have general contract for erecting 165 miles of rural transmission lines in Prince George's, St. Mary's, and Charles counties.

District of Columbia

WASHINGTON — Bureau of supplies and accounts, Treasury department, is taking bids until Aug. 13 for a motor driven pressure type blower, schedule 1372, for delivery Philadelphia, and until Aug. 17 for miscellaneous sizes of aluminum alloy sheets, schedule 1391, delivery San Diego, Calif.; a motor driven surface grinding machine, schedule 1393, for delivery Newport, R. I.; and a motor driven thread grinding machine, schedule 1396, for delivery Philadelphia.

Kentucky

GREEN RIVER, KY.—Green River Electric Co-operative has been allotted $137,000 by REA in addition to previous grant of $100,000 to erect 280 miles of rural transmission lines.

HAZARD, KY.—City council plans to extend and improve municipal power plant and waterworks, and will install new equipment.

SHELBYVILLE, KY.—Shelby Rural Electric Co-operative has been granted $100,000 by REA in addition to previous allotment of $200,000 for completing erection of rural transmission lines.

Florida

ST. AUGUSTINE, FLA.—Florida Power & Light Co., Miami, plans extensions in its 31,000-volt transmission line.

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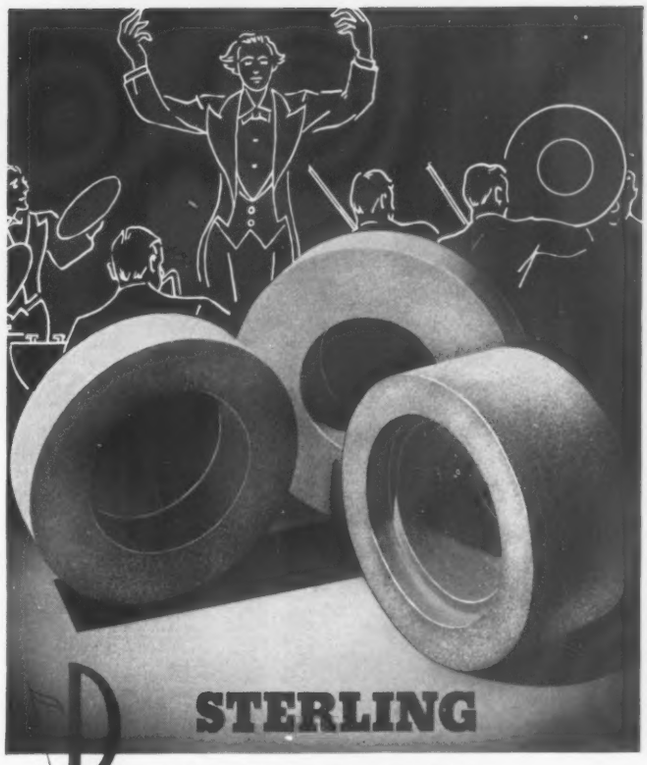

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Georgia

THOMASVILLE, GA.—City superintendent of water and light department D. R. Pringle will receive bids Aug. 16 for installation of 2500-kilowatt steam turbogenerator, condenser and accessories, and auxiliary equipment in light plant.

North Carolina

WILMINGTON, N. C.—Riegel Paper Corp., 342 Madison avenue, New York, which plans to build a new multi-unit plant at Wilmington, costing around $5,000,000, has engaged J. E. Sirrine & Co., Greenville, S. C., as engineer. Construction will start within six months. (Noted STEEL Aug. 2.)

Invitation to *SLUMBER* in NEW YORK

DIRECTIONS for sound sleep: snuggle between the snowy white sheets of any bed in the McAlpin . . . relax upon a deep, soft mattress . . . let its luxury soothe your body into refreshing slumber.

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Louisiana

BATON ROUGE, LA.—Roseland Mfg. Co., H. J. Wilson, president, plans to build a $100,000 plant addition for manufacturing wooden products.

LAKE CHARLES, LA. — Continental Oil Co., 60 East Forty-second street, New York, plans to expand its facilities. Including construction of a pipe line, total cost will be approximately $1,500,000.

RUSTON, LA. — Arkansas-Louisiana Gas Co. plans to build an absorption plant costing $300,000.

West Virginia

CLARKSBURG, W. VA.—Harrison Rural Electrification Association Inc. plans to build a generating plant costing $100,000, for which REA has allocated funds.

VANDALIA, W. VA.—Aetna Foundry Co. plans to build a plant at the Trojan Steel Co. properties. Cost will be over $40,000.

Missouri

ST. LOUIS, MO.—Keasbey & Mattison Co., Ambler, Pa., plans to construct an asbestos cement plant costing $500,000.

Oklahoma

PENSACOLA, OKLA.—Survey authorized by Secretary of War Woodring is under way on proposed Grand river hydroelectric power project.

TULSA, OKLA.—Tulsa Portland Cement Co., W. L. Harris, president, 1537 East Admiral place, plans to install motors and controls, conveyors, transformers and other equipment in new cement mill.

Wisconsin

CHIPPEWA FALLS, WIS.—Wisconsin Power Co-operative, Walter Leonard, Ellsworth, Wis., secretary, will close bids Aug. 17 for construction of a rural electrical diesel engine generating plant four miles north of the city. Banister Engineering Co., Hudson, Wis., is engineer.

SHEBOYGAN, WIS.—Sheboygan Foundry Co. will build a shop addition, 40 x 80 feet, for which general contract has been awarded to Hugo Bunke, Sheboygan. Architects are Satre & Senescall, 802 Michigan avenue.

Minnesota

PRESTON, MINN.—Fillmore County Co-operative Electric association, Laurence L. Tollefson, secretary, will take bids until Aug. 12 for construction of 175 miles of rural lines in Fillmore, Houston and Winona counties. Toltz, King & Day Inc., Pioneer building, St. Paul, is engineer.

RED WING, MINN.—Major Phillip B. Fleming, district United States engineer, 615 Commerce building, will take bids until Aug. 18 for a power control and lighting system for lock and dam No. 3 in the Mississippi river.

ST. PAUL, MINN.—Automatic Traffic Control Corp. has been organized by Clyde R. May, L. T. Mork and John J. McDonough and has leased quarters to manufacture a traffic-operated traffic signal.

ST. PAUL, MINN.—Superior Metal Products Co., 519 Kent street, will build a 1-story factory, and has given general contract to L. H. Sault, Gilfillan block.

SPRINGFIELD, MINN.—Central Minnesota Co-operative Power association, G. E. Luescher, secretary, has received an REA allotment of $109,000, in addition to $70,000 previously granted, for the erection of 166 miles of rural transmission lines in Redwood and Brown counties.

Texas

JOAQUIN, TEX.—Porter Oil Co. is considering construction of gasoline plant.

SEMINOLE, TEX.—City voters have approved waterworks bonds for waterworks improvements, including installation of an electric-driven pump and erection of a 50,000-gallon elevated steel tank. H. N. Robert is engineer, 2415 Twentieth street, Lubbock, Tex.

TEXARKANA, TEX.—H. M. Barney, Texarkana, has been granted permission by state board of conservation to build a carbon black plant in the southern portion of Miller county. Cost will be approximately $400 000.

WICHITA FALLS, TEX.—Deep Oil Development Co. plans to construct a gasoline plant costing around $75,000.

Iowa

HAMPTON, IOWA — Franklin County Rural Electrification Co-operative has received a loan of $260,000 from REA, making a total of $418,000 for the erection of approximately 375 miles of rural transmission lines.

NEW MARKET, IOWA—City plans to build a new power plant building, 31 x 41 feet, to house diesel engines and other equipment. Including a distribution system, total cost of construction will be $55,000. A. S. Harrington, Baum building, Omaha, Nebr., is engineer.

TOLEDO, IOWA—Tama County Rural Electric Co-operative has submitted plans for approval to REA for erecting 152 miles of rural transmission lines. R. S. Stephensen, Reinbeck, Iowa, is president.

Nebraska

HOLDREGE, NEBR.—City council has authorized extension and improvements to municipal power plant, and estimates of cost are being made. Additional equipment will be installed. Robert Fulton, 2377 South Nineteenth street, Lincoln, is engineer.

Pacific Coast

LOS ANGELES—Swift & Co., 3750 Jewel avenue, plans to install electric power equipment in several multi-story plant additions costing close to $1,000,000. Swift's main office is Union Stockyards, Chicago.

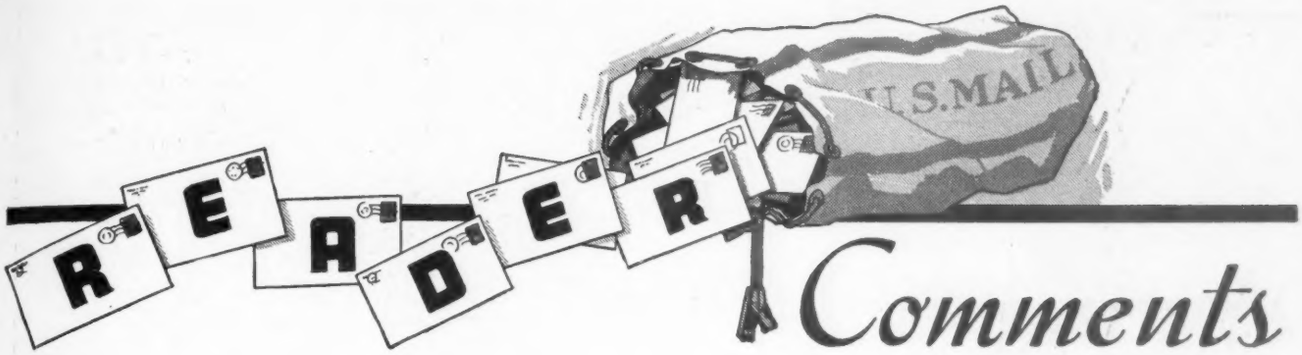
BELLINGHAM, WASH.—Puget Sound Pulp & Timber Co. stockholders have approved proposed expansion program, to cost $2,500,000 and to double present capacity.

HOQUIAM, WASH.—Quinault Logging Co. has applied to county for franchise to construct a 230-kilowatt hydroelectric generating plant to serve the Quinault lake area. The application will be considered Aug. 16.

SEATTLE—University of Washington will take bids Aug. 31 for boiler and auxiliary heating equipment.

Canada

MONTREAL, QUE.—Canadian Copper Refineries Ltd. is planning to build a 1-story, 48 x 51-foot plant addition costing $50,000.



Comments

Readers are invited to comment upon articles, editorials, reports, prices or other editorial material appearing in STEEL. The editors cannot publish unsigned communications, but at their discretion may permit a writer to use a pseudonym when a bona fide reason exists for withholding his identity. Letters should be brief—preferably not exceeding 250 words.

Concise, Helpful, Palatable

To the Editor:

It's a pleasure to tell you that of over thirty magazines that I regularly read, I consider STEEL the most concise, helpful and palatable. Concise—because you don't mince words and keep the number of pages limited. Helpful—because you present facts and leave the individual largely free to form conclusions. Palatable — because of excellent presentation and logical arrangement.

Keep up the good work; because you are "one" who is editing a magazine in a sane way in a largely insane world.

FRED E. MOORE JR.

Vice president, Lenape Hydraulic Pressing & Forging Co., West Chester, Pa.

Hydropower Hurts Steel

To the Editor:

The coal and steel industries are reciprocal businesses, being closely interlocked. They exchange great quantities of each other's products. The railroads are allied to both industries. The wide-spread development of hydroelectric power would exert a strong economic influence on all three of these major industries, and anything which would injure one would be injurious to all.

Curtailed coal production on account of hydroelectrical power would increase increment mining and hauling costs, and therefore increase the delivered cost of coal to the steel industry. At the same time the steel buying power of mines and railroads would accordingly be decreased.

Another important item is taxes. Whereas the development of hydroelectric increases taxes, it decreases the ability of these industries to pay taxes. Tax payers must pay the huge investment costs of power dams, generators and distribution systems, which in the main, duplicate existing coal-steam equipment, and at the same time they must pay for the unemployment occasioned by the encroachment of a laborless industry on the field occupied by well established and highly laborized industries.

R. E. HOWE

Vice president, Appalachian Coals, Inc., Cincinnati.

Road Open from Ranks

To the Editor:

It has been our practice for many years, 35, 40 or perhaps even longer, to take engineering graduates from recognized technical schools for a course of training, leading ultimately to employment as sales engineers, designing engineers, erection engineers, etc.

A very large proportion of the company's engineering sales and executive organization is made up of men who have entered into the employ as graduate students. The company seldom goes outside of its own organization to fill an executive position.

Most of the products of the company are engineering products, and therefore engineering training is a very decided asset. This does not mean that men coming up through the ranks do not receive recognition, in fact a number of our executives have come into the organization in that way.

A. K. BIRCH

Manager, publicity department, Allis-Chalmers Mfg. Co., Milwaukee, Wis.

On "Salesman's Attitude"

To the Editor:

Regarding Mr. Stilwell's article in the Aug. 2 issue of STEEL, the idea of a salesman helping the production department of his company by relaying suggestions and criticisms obtained while making calls on customers and prospective customers is a good one.

But there is one phase of this question which must be considered if worthwhile results are to be obtained from salesman's reports. This phase may be termed the "salesman's attitude" or "frame of mind."

It is a natural reaction for a salesman in failing to obtain an order to report that if his product had this or that feature that his competing product had, he would have been able to obtain the order. This report is generally made in good faith.

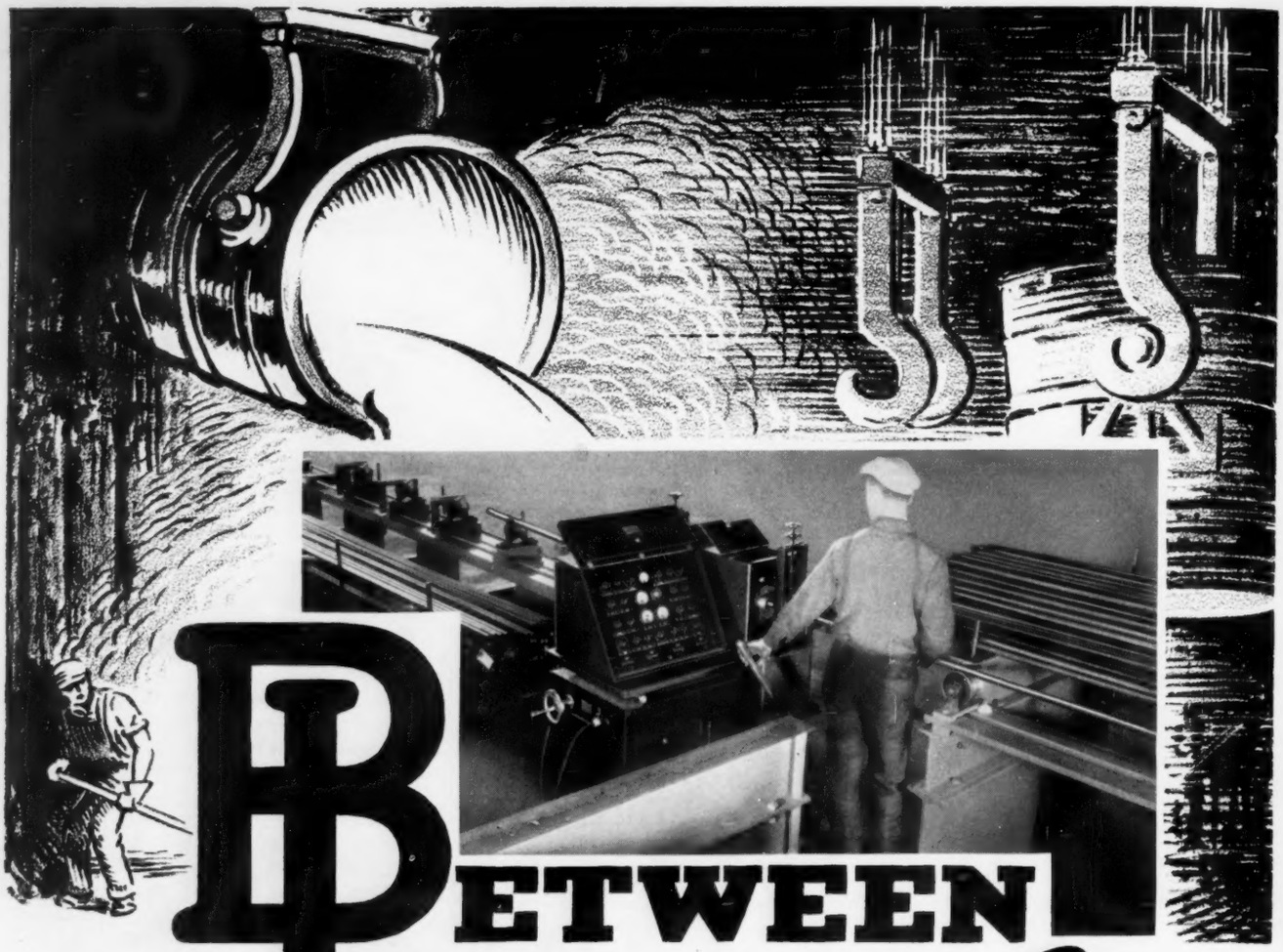
It is common practice for a buyer, having made up his mind to buy some particular product, when confronted by the salesman of a competitive product to pick out some feature which the competitive product does not have, and give that as the reason for not purchasing.

Of course, when this same reason is given repeatedly by different buyers then it becomes worthy of consideration. But, too often in making criticisms or giving reasons for not purchasing a product the buyer is simply looking for a way to get rid of the salesman, and it is not always easy for the salesman to pick out honest, sincere, and justified suggestions or criticisms.

We think this phase of the question should be taken into consideration.

H. E. KNIGHT

Vice president, W. B. Knight Machinery Co., St. Louis.



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